MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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J. G. Murphy

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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

SEVENTY-EIGHTH ANNUAL SESSION

HELD AT

DURHAM, NORTH CAROLINA

April 20, 21 and 22, 1931

PRESIDENT

J. G. MURPHY, M. D., F. A. C. S., WILMINGTON

SECRETARY-TREASURER

L. B. McBRAYER, M. D., F. A. C. P., SOUTHERN PINES

REPORTERS

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Master Reporting Co., New York
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Dr. J. W. Dickie.....Southern Pines

"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."

—*Extract from By-Laws, Chapter* 10, *Section* 8.

EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY, FROM ORGANIZATION TO 1804

Date	Place	President	Vice-Presidents	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 17, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1931

*Missing Data Not to be Found in Record

	Date	Place of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill	.....	W. H. McKee	.....	25	.....	.....
1	1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	.....
2	1851	Raleigh	23	E. Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	0	.....
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	.....
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	.....
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	.....
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	.....
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	.....
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson	W. G. Thomas	J. B. Dunn	113	16	.....
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	.....
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham	.....	.....	.....
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	.....
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	.....
13	1866	Raleigh	20	J. J. Summerell	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	W. G. Thomas	C. W. Graham	.....	.....	.....
14	1867	Tarboro	41	W. G. Thomas	.....	S. S. Satchwell	C. W. Graham	288	11	.....
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones	.....	.....	.....
16	1869	Salisbury	36	E. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones	.....	.....	.....
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones	.....	.....	.....
18	1871	Raleigh	35	Hugh Kelley	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L. Kirby.	Thomas F. Wood	J. W. Jones	.....	.....	.....
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones	.....	.....	.....

20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, P. T. Jerman.	James McKee	H. T. Bahnson	.....	.....	.....
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson	.....	.....	.....
22	1875	Wilson	60	J. W. Jones	Walker Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	.....
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	.....
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	.....
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr	194	6	.....
26	1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	.....
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	.....
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	.....
29	1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	.....
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	.....
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	.....
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	.....
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	.....
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Van Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	.....
35	1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker	C. M. Van Poole	306	6	.....
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker	C. M. Van Poole	410	6	.....
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth.	J. M. Hays	C. M. Van Poole	414	6	.....
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays	C. M. Van Poole	422	6	.....
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Van Poole	431	6	.....
40	1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro	.....	J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1931

*Missing Data Not to be Found in Record

Date		Place of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
43	1896	Winston Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte	.....	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Presley	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Van Poole, James M. Parrott, T. B. Williams, W. D. Hillard.	Geo. W. Presley	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	Geo. W. Presley	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	Geo. W. Presley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison.	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	E. C. Register	L. B. McBrayer, W. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLaughlin, W. F. Hargrove.	David A. Stanton	H. McK. Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon.	David A. Stanton	H. McK. Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Van Poole, D. A. Garrison, D. O. Dees.	David A. Stanton	H. McK. Tucker	1,067	7	25
57	1910	Wrightsville Beach	276	J. A. Burroughs† E. J. Wood	E. J. Wood, John Q. Myers, L. D. Wharton.	David A. Stanton	H. D. Walker	1,080	8	35
58	1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn.	David A. Stanton	H. D. Walker	880	8	45

†Died during his term of office; succeeded by E. J. Wood, first vice-president.

59	1912	Henderson-ville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy.	David A. Stanton	H. D. Walker	950	8	44
60	1913	Horehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse.	John A. Ferrell	H. D. Walker	1,133	8	40
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier.	John A. Ferrell	H. D. Walker	1,228	8	47
62	1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell.	John A. Ferrell	H. D. Walker	1,221	9	68
63	1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison.	Benj. K. Hays	W. M. Jones	1,228	10	79
64	1917	Asheville	280	Charles O'H. Laughinghouse	D. J. Hill, J. L. Spruill, J. H. Shuford.	Benj. K. Hays	W. M. Jones	1,271	11	81
65	1918	Pinehurst	291	I. W. Faison	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal.	Benj. K. Hays	W. M. Jones	1,087	11	81
66	1919	Pinehurst	335	Cyrus Thompson	J. W. Halford, T. W. Davis, A. McN. Blair.	Benj. K. Hays	Acting L. B. McBrayer	1,306	11	100
67	1920	Charlotte	479	C. V. Reynolds	H. D. Walker, F. Stanley Whitaker, Thomas I. Fox.	Benj. K. Hays	L. B. McBrayer	1,497	12	100
68	1921	Pinehurst	404	T. E. Anderson	C. S. Lawrence, W. H. Ward, J. M. Manning.	Benj. K. Hays	L. B. McBrayer	1,491	12	93
69	1922	Winston-Salem	507	H. A. Royster	W. T. Parrott, B. C. Nalle, J. R. McCracken.		Sec'y-Treas. L. B. McBrayer	1,571	12	100
70	1923	Asheville	356	J. W. Long	F. M. Hanes, T. C. Johnson, B. L. Long.		L. B. McBrayer	1,592	9	101
71	1924	Raleigh	525	J. V. McGougan	J. L. Spruill, ‡Eugene B. Glenn, D. A. Garrison.		L. B. McBrayer	1,604	9	106
72	1925	Pinehurst	550	Albert Anderson	W. L. Dunn, A. E. Bell, K. G. Averitt.		L. B. McBrayer	1,657	10	116
73	1926	Wrightsville Beach	445	Wm. deB. MacNider	J. P. Matheson, W. W. Dawson, H. H. Bass.		L. B. McBrayer	1,663	10	107
74	1927	Durham	653	John Q. Myers	J. W. Carroll, A. Y. Linville, C. H. Cocke.		L. B. McBrayer	1,691	10	121
75	1928	Pinehurst	611	John T. Burrus	G. H. Macon, R. F. Leinbach, W. R. Griffin.		L. B. McBrayer	1,738	11	143
76	1929	Greensboro	671	Thurman D. Kitchin	Dr. W. L. Dunn,* Asheville; Dr. D. T. Tayloe, Jr., Washington, Dr. W. D. James, Hamlet.		L. B. McBrayer	1,666	11	146
77	1930	Pinehurst	701	L. A. Crowell	W. B. Murphy, Wm. E. Warren, N. B. Adams.		L. B. McBrayer	1,711	11	155
78	1931	Durham	784	J. G. Murphy	President-Elect M. L. Stevens	Vice-Presidents* C. A. Julian Greensboro J. W. Davis, Statesville.	Sec'y-Treas L. B. McBrayer	1,600	10	164

*Died during his term of office.

ROSTER OF MEMBERS OF THE VARIOUS BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

FIRST BOARD

JAMES H. DICKSON, Wilmington....1859-1866
CHARLES E. JOHNSON, Raleigh....1859-1866
CALEB WINSLOW, Hertford....1859-1866
OTIS F. MANSON, Townsville....1859-1866
WILLIAM H. McKEE, Raleigh....1859-1866
CHRISTOPHER HAPPOLDT, Morganton....1859-1866
J. GRAHAM TULL, New Bern....1859-1866
SAMUEL T. IREDELL, Secretary....1859-1866

SECOND BOARD

N. J. PITTMAN, Tarboro....1866-1872
E. BURKE HAYWOOD, Raleigh....1866-1872
R. H. WINBORNE, Edenton....1866-1872
S. S. SATCHWELL, Rocky Point....1866-1872
J. J. SUMMERELL, Salisbury....1866-1872
R. B. HAYWOOD, Raleigh....1866-1872
M. WHITEHEAD, Salisbury....1866-1872
J. F. SHAFFNER, Salem....1866-1872
WILLIAM LITTLE, Secretary....1866-1867
THOMAS F. WOOD, Secretary, Wilmington....1867-1872

THIRD BOARD

CHARLES J. O'HAGAN, Greenville....1872-1878
W. A. B. NORCOM, Edenton....1872-1878
C. TATE MURPHY, Clinton....1872-1878
GEORGE A. FOOTE, Warrenton....1872-1878
J. W. JONES, Tarboro....1872-1878
R. L. PAYNE, Lexington....1872-1878
CHARLES DUFFY, JR., Secretary, New Bern....1872-1878

FOURTH BOARD

PETER E. HINES, Raleigh....1878-1884
THOMAS D. HAIGH, Fayetteville....1878-1884
GEORGE L. KIRBY, Goldsboro....1878-1884
THOMAS F. WOOD, Wilmington....1878-1884
JOSEPH GRAHAM, Charlotte....1878-1884
[1]ROBERT I. HICKS, Williamston....1878-1880
[2]RICHARD H. LEWIS, Raleigh....1880-1884
HENRY T. BAHNSON, Secretary, Salem....1878-1884

FIFTH BOARD

WILLIAM R. WOOD, Scotland Neck....1884-1890
AUGUSTUS W. KNOX, Raleigh....1884-1890
FRANCIS DUFFY, New Bern....1884-1890
PATRICK L. MURPHY, Morganton....1884-1890
WILLIS ALSTON, Littleton....1884-1890
J. A. REAGAN, Weaverville....1884-1890
W. J. H. BELLAMY, Secretary, Wilmington....1884-1890

SIXTH AND SEVENTH BOARDS

R. L. PAYNE, JR., Lexington....1890-1892
GEORGE W. PUREFOY, Asheville....1890-1892
GEORGE G. THOMAS, Wilmington....1890-1894
ROBERT S. YOUNG, Concord....1890-1894
WILLIAM H. WHITEHEAD, Rocky Mount....1890-1896
GEORGE W. LONG, Graham....1890-1896
L. J. PICOT, Secretary, Littleton....1890-1896
JULIAN M. BAKER, Tarboro....1892-1898
H. B. WEAVER, Secretary, Asheville....1892-1898
[3]J. M. HAYS, Greensboro....1894-1897
[4]KEMP P. BATTLE, JR., Raleigh....1897-1900

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[1]Resigned before expiration of term.
[2]Elected for unexpired term of Dr. Hicks.
[3]Died before the expiration of his term.
[4]Elected to serve unexpired term of Dr. Hays.

[1]THOMAS S. BURBANK, Wilmington....1894-1898
[2]WILLIAM H. H. COBB, Goldsboro....1898-1900
[1]RICHARD H. WHITEHEAD, Chapel Hill....1896-1898
[3]J. HOWELL WAY, Secretary, Waynesville....1898-1902
DAVID T. TAYLOE, Washington....1896-1902
THOMAS E. ANDERSON, Secretary, Statesville....1896-1902
[4]ALBERT ANDERSON, Wilson....1898-1902
[4]EDWARD C. REGISTER, Charlotte....1898-1902
[4]THOMAS S. McMULLAN, Hertford....1900-1902
[4]JOHN C. WALTON....1900-1902

EIGHTH BOARD

A. A. KENT, Lenoir....1902-1908
CHARLES O'H. LAUGHINGHOUSE, Greenville....1902-1908
M. H. FLETCHER, Asheville....1902-1908
JAMES M. PARROTT, Kinston....1902-1908
J. T. J. BATTLE, Greensboro....1902-1908
FRANK H. RUSSELL, Wilmington....1902-1908
[1]GEORGE W. PRESSLY, Secretary, Charlotte....1902-1906
[5]G. T. SIKES, Secretary, Grissom....1906-1908

NINTH BOARD

LEWIS B. McBRAYER, Asheville....1908-1914
JOHN C. RODMAN, Washington....1908-1914
WILLIAM W. McKENZIE, Salisbury....1908-1914
HENRY H. DODSON, Greensboro....1908-1914
JOHN BYNUM, Winston-Salem....1908-1914
J. L. NICHOLSON, Richlands....1908-1914
BENJ. K. HAYS, Secretary, Oxford....1908-1914

TENTH BOARD

ISAAC M. TAYLOR, Morganton....1914-1920
JOHN Q. MYERS, Charlotte....1914-1920
JACOB F. HIGHSMITH, Fayetteville....1914-1920
MARTIN L. STEVENS, Asheville....1914-1920
[6]CHARLES T. HARPER, Wilmington....1914-1915
[7]EDWIN G. MOORE, Elm City....1915-1920
[8]JOHN G. BLOUNT, Washington....1914-1920
HUBERT A. ROYSTER, Secretary, Raleigh....1914-1920

ELEVENTH BOARD

LESTER A. CROWELL, Lincolnton....1920-1926
WILLIAM P. HOLT, Duke....1920-1926
J. GERALD MURPHY, Wilmington....1920-1926
LUCIUS N. GLENN, Gastonia....1920-1926
CLARENCE A. SHORE, Raleigh....1920-1926
WILLIAM M. JONES, Greensboro....1920-1926
KEMP P. B. BONNER, Secretary, Morehead City....1920-1926

TWELFTH BOARD

PAUL H. RINGER, President, Asheville....1926-1932
W. HOUSTON MOORE, Wilmington....1926-1932
T. W. M. LONG, Roanoke Rapids....1926-1932
[6]W. W. DAWSON, Grifton....1926-1932
J. K. PEPPER, Winston-Salem....1926-1932
FOY ROBERSON, Durham....1926-1932
JOHN W. McCONNELL, Secretary, Davidson....1926-1932
[9]DAVID T. TAYLOE, JR., Washington....1930-1932

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[1]Resigned before the expiration of his term.
[2]Elected to serve the unexpired term of Dr. Burbank.
[3]Elected to serve the unexpired term of Dr. Whitehead.
[4]Elected for short term expiring in 1902.
[5]Elected to serve the unexpired term of Dr. Pressly.
[6]Died before the expiration of his term.
[7]Elected to serve the unexpired term of Dr. Harper.
[8]Died a few months before the expiration of his term; such a short time that the vacancy was not filled.
[9]Elected to serve unexpired term of Dr. W. W. Dawson.

NOTE: In 1890 the Medical Society of the State of North Carolina adopted the plan of electing members of the Board in such a manner that the terms would expire at different intervals of two years. This practice was followed for twelve years, or until 1902, when the plan was abandoned; an equivalent of two terms of six years each. It is evident that the Society arranged to abandon the policy as early as 1898, as two members were elected for short terms, and two years later two other members were elected for still shorter terms. It is therefore impossible to separate the sixth and seventh Boards, since the membership was overlapping.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH FROM ORGANIZATION IN 1877 TO 1931

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M.D.	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1886
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1888
H. T. Bahnson, M.D., President	Winston	State Society	1887 to 1888
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1889
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1888 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1888 to 1891
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1892
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1893
J. M. Baker, M.D.	Tarboro	State Society	1891 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1892
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1897
Thomas F. Wood, M.D., Secretary*	Wilmington	State Society	1892 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1891 to 1895
S. Westray Battle, M.D.	Asheville	State Society	1892 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1893 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1894 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Elias Carr	1897 to 1899
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

MEMBERS' STATE BOARD OF HEALTH—Continued

Name	Address	Appointed by	Term
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1900
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1909
James A. Burroughs, M.D.[1]	Asheville	State Society	1907 to 1913
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1913
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.[2]	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1913 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.[1]	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1917 to 1923
Fletcher R. Harris, M.D.[3]	Henderson	State Society	1919 to 1923
A. J. Crowell, M.D.	Charlotte	Gov. T. W. Bickett	1919 to 1923
Chas. E. Waddell, C.E.[4]	Asheville	Gov. C. Morrison	1921 to 1923
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1919 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1923 to 1925
J. Howell Way, M.D., President	Waynesville	Gov. C. Morrison	1923 to 1929
A. J. Crowell, M.D.	Charlotte	Gov. C. Morrison	1923 to 1929
James P. Stowe, Ph. G.	Charlotte	Gov. C. Morrison	1923 to 1927
D. A. Stanton, M.D.	High Point	State Board of Health	1923 to 1925
Thomas E. Anderson, M.D.	Statesville	State Society	1923 to 1929
Charles O'H. Laughinghouse, M.D.[5]	Greenville	State Society	1923 to 1926
Cyrus Thompson, M.D.[1]	Jacksonville	State Society	1925 to 1931
D. A. Stanton, M.D.	High Point	State Society	1925 to 1931
R. H. Lewis, M.D.[1]	Raleigh	Gov. A. W. McLean	1925 to 1931
Jno. B. Wright, M.D.[6]	Raleigh	Gov. A. W. McLean	1926 to 1931
E. J. Tucker, D.D.S.[6]	Roxboro	Gov. A. W. McLean	1925 to 1931
W. S. Rankin, M.D.[4]	Charlotte	State Board of Health	1926 to 1927
L. E. McDaniel, M.D.	Jackson	State Board of Health	1927 to 1929
Chas. C. Orr, M.D.	Asheville	Gov. A. W. McLean	1927 to 1929
Thomas E. Anderson, M.D.[6]	Statesville	State Society	1929 to 1935
L. E. McDaniel, M.D.[6]	Jackson	State Society	1929 to 1935
James P. Stowe, Ph. G.[6]	Charlotte	Gov. A. W. McLean	1927 to 1933
A. J. Crowell, M.D.[6]	Charlotte	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.	Kinston	State Board of Health	1930 to 1931
Chas. C. Orr, M.D.[6]	Asheville	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.[5]	Kinston	State Society	1931 to 1935
C. V. Reynolds, M.D.	Asheville	State Society	1931 to 1935
L. B. Evans, M.D.	Windsor	State Society	1931 to 1933
S. D. Craig, M.D.	Winston-Salem	State Society	1931 to 1933
John T. Burrus, M.D.	High Point	Gov. O. Max Gardner	1931 to 1933
J. N. Johnson, D.D.S.	Goldsboro	Gov. O. Max Gardner	1931 to 1933
J. A. Goode, Ph.G.	Asheville	Gov. O. Max Gardner	1931 to 1933
H. L. Large, M.D.	Rocky Mount	Gov. O. Max Gardner	1931 to 1935
H. G. Baity, C.E.	Chapel Hill	Gov. O. Max Gardner	1931 to 1935
Grady G. Dixon, M.D.[7]	Ayden	Ex. Com. State Society	1931 to 1932

[1]Died leaving unexpired term.
[2]Resigned to become member of General Assembly.
[3]Resigned to become Health Officer Vance County.
[4]Resigned.
[5]Resigned to become Secretary of State Board of Health.
[6]Term terminated account reorganization State Board of Health by General Assembly.
[7]To fill vacancy caused by resignation of Dr. J. M. Parrott.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1917–1931

County	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
Alamance-Caswell a	12	10	15	27	27	31	27	27	25	27	30	30	32	33	33
Alexander b	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alleghany	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Anson	....	1	3	2	1	2	12	12	11	10	6	8	8	6	6
Ashe	11	15	8	7	5	9	8	6	10	6	8	6	5	5	5
Avery	9	7	6	4	5	4	5	5	5	5	6	6	6	5	5
Beaufort	10	11	10	14	12	14	17	14	17	17	17	17	16	18	15
Bertie	3	5	5	10	9	12	10	9	9	8	8	8	6	7	9
Bladen	9	8	9	8	7	7	4	3	8	7	8	8	8	8	8
Brunswick	....	2	2	2	1	1	1	1	1	1	1	4	6	2	2
Buncombe	74	76	81	83	92	96	99	105	97	102	118	120	118	113	112
Burke	16	17	6	11	12	11	15	13	14	11	11	12	12	17	17
Cabarrus	20	22	19	20	19	21	23	19	21	21	22	27	27	23	20
Caldwell	9	13	12	10	10	12	12	10	11	14	15	15	13	15	14
Camden c	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Carteret	7	4	7	9	9	8	12	10	10	12	12	11	11	12	12
Caswell d	1	1	3	2	2	1	1	1	2	....	....	....	....	....	....
Catawba	18	....	5	18	16	22	20	19	16	16	21	16	17	13	13
Chatham	11	11	7	10	11	6	7	9	9	7	9	8	9	9	4
Cherokee	11	10	6	10	10	10	10	9	10	9	8	10	10	10	9
Chowan-Perquimans	3	....	6	8	7	6	7	8	5	9	10	9	7	8	6
Clay e	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cleveland	16	16	17	19	16	19	18	18	17	19	20	20	22	23	19
Columbus	7	1	6	10	8	9	14	11	12	14	15	14	14	15	10
Craven	11	7	7	6	6	8	10	12	14	16	17	15	14	13	13
Cumberland	17	16	15	20	24	23	22	32	31	28	29	28	22	26	23
Currituck	6	1	5	5	5	5	4	4	4	4	3	2	1	1	1
Dare f	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Davidson	20	20	19	18	16	18	18	22	20	19	19	18	17	16	17
Davie	5	4	4	4	4	4	6	4	5	4	5	5	5	5	5
Duplin	10	9	9	10	12	11	12	12	13	13	13	9	11	9	11
Durham-Orange	44	35	33	45	40	43	43	47	53	60	64	63	65	67	76
Edgecombe-Nash	10	10	7	15	15	15	12	10	11	12	12	12	7	10	43
Forsyth	45	37	37	57	62	60	59	62	63	64	66	74	59	70	66
Franklin	10	11	11	12	10	12	12	12	12	12	10	12	11	10	9
Gaston	27	27	26	35	38	39	40	40	39	40	38	39	39	36	33
Gates	....	....	1	....	....	....	1	1	1	....	....	1	2	2	2
Graham	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Granville	16	14	14	15	14	14	12	13	13	12	12	14	13	13	13
Greene	5	2	5	6	7	7	5	6	5	5	5	5	5	5	5
Guilford	68	67	72	77	78	80	87	93	107	112	119	123	130	124	124
Halifax	8	1	7	28	24	24	18	21	20	16	14	17	17	16	15
Harnett	17	15	14	16	15	16	15	15	13	12	16	16	15	14	13
Haywood	11	9	9	11	10	12	13	13	14	14	13	8	14	14	12
Henderson j	....	....	....	....	....	....	....	....	....	17	19	16	16	19	14
Henderson-Polk g	15	11	13	15	13	13	13	13	14	....	....	....	....	....	....
Hertford	5	10	10	10	10	10	10	10	8	8	7	7	6	5	5
Hoke	10	11	10	10	8	6	8	9	11	10	11	12	14	14	14
Hyde	....	1	2	1	1	2	1	2	1	1	1	1	1	1	1
Iredell-Alexander	20	11	11	21	18	20	19	20	26	29	34	37	39	38	38
Jackson	5	2	5	5	6	6	6	8	7	7	6	5	6	6	3
Johnston	22	16	24	22	23	26	25	25	24	28	24	23	18	23	25
Jones	....	....	....	....	....	1	2	1	4	4	3	3	3	3	3
Lee	8	6	8	8	8	10	10	11	13	13	13	14	16	13	11
Lenoir	16	15	17	22	19	20	17	20	18	20	22	23	20	22	17
Lincoln	9	11	15	16	14	13	14	16	11	11	12	13	14	13	10
Macon-Clay	4	6	6	6	7	7	7	7	6	8	8	9	6	8	4
Madison	10	....	11	11	12	8	11	11	11	11	5	12	7	5	3
Martin	17	12	11	16	14	12	13	10	10	10	10	10	10	8	7
McDowell	8	7	6	6	5	5	6	7	8	7	8	7	9	12	10
Mecklenburg	63	49	97	104	107	110	115	109	121	117	104	119	125	128	124
Mitchell-Watauga	1	....	4	5	8	10	10	7	7	8	7	9	8	6	5
Montgomery	9	8	6	8	11	10	9	9	8	9	9	10	11	9	10
Moore	10	15	16	16	17	21	20	20	19	21	17	20	22	17	21
Nash m	27	21	26	25	26	30	30	33	34	32	31	30	30	33	....
New Hanover	30	29	38	40	46	51	46	44	42	40	41	38	32	38	37
Northampton	14	11	13	10	11	11	10	10	10	11	9	9	6	3	4
Onslow	11	7	9	8	7	7	5	6	6	5	5	6	5	5	5
Orange h	....	....	....	....	6	....	....	....	....	....	....	....	....	....	....
Pamlico	5	4	4	5	6	5	5	4	5	5	5	5	5	4	4
Pasquotank-Camden-Dare	19	16	15	16	11	19	18	17	18	19	18	16	14	17	14
Pender	....	4	3	1	1	2	2	1	1	1	1	1	1	1	1
Perquimans i	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Person	12	....	12	10	11	10	10	10	8	7	7	7	6	6	6
Pitt	14	5	18	24	19	24	23	24	26	24	26	31	24	27	27
Polk j	....	....	....	....	....	....	....	....	....	5	6	6	6	6	5

STATUS OF MEMBERSHIP BY COUNTIES—Continued

County	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
Randolph	13	11	12	13	15	14	14	13	14	12	10	11	10	8	7
Richmond	14	11	13	12	14	13	14	16	19	18	18	18	14	17	17
Robeson	16	8	31	35	34	33	27	29	30	31	28	28	21	24	21
Rockingham	4	15	16	20	23	25	21	23	26	23	24	21	20	24	24
Rowan	23	22	24	28	31	32	32	36	40	40	40	42	35	35	39
Rutherford	14	17	18	20	12	18	22	21	21	22	24	22	22	22	21
Sampson	15	10	11	13	14	12	13	17	15	14	13	13	10	13	13
Scotland	13	10	9	10	12	12	12	12	12	12	12	12	12	10	11
Stanly	14	11	11	15	12	11	12	15	14	13	15	14	14	16	15
Stokes	10	5	5	10	6	12	9	10	10	5	7	8	6	2	6
Surry	23	24	28	28	25	25	24	26	22	17	20	22	20	20	13
Swain	6	7	2	3	1	4	3	1	1	1	....	....	....	....	....
Transylvania	5	....	1	1	1	5	6	4	8	4	5	7	4	2	2
Tyrrell k	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Union	13	15	14	16	17	17	18	18	19	19	16	16	14	13	10
Vance	10	4	5	11	11	10	10	12	11	12	11	11	11	12	8
Wake	70	56	81	68	73	76	85	73	78	79	78	80	84	94	87
Warren	7	6	3	8	8	7	7	6	6	6	6	6	6	6	6
Washington-Tyrrell	....	....	....	....	10	9	9	9	8	8	6	6	5	3	3
Watauga l	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wayne	19	18	27	28	24	33	32	29	32	34	32	38	38	38	30
Wilkes	9	8	10	10	11	10	10	10	10	9	14	11	10	10	11
Wilson	24	21	25	29	31	28	31	31	32	34	34	35	31	28	28
Yadkin	....	....	10	2	5	4	3	2	3	2	2	3	5	10	....
Yancey	....	....	3	3	1	1	1	1	1	2	7	5	3	4	1
Totals	1271	1087	1306	1497	1491	1571	1592	1606	1657	1666	1691	1738	1669	1694	1600

a The figures for 1926 are for Alamance-Caswell; for the other years, for Alamance only; b See Iredell -Alexander: c See Pasquotank-Camden-Dare; d For 1926, see Alamance-Caswell; e See Macon-Clay; f see Pasquotank-Camden-Dare; g See Henderson or Polk for years after 1925; h See Durham-Orange; i See Chowan-Perquimans; j See Henderson-Polk for 1912-1925; k See Washington-Tyrrell; l See Mitchell-Watauga; m See Edgecombe-Nash.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Abel, J. F. ..... Waynesville
Abernathy, H. N. ..... Charlotte
*Achorn, John W. ..... Pinebluff
Adams, C. A. ..... Durham
Adams, Charles E. ..... Gastonia
Adams, M. R. ..... Statesville
*Alexander, Annie L. ..... Charlotte
Alexander, Chas. A. ..... Burlington
Alexander, Jas. R. ..... Charlotte
*Allen, Rufus L. ..... Waynesville
*Alston, B. P. ..... Epsom
Ambler, C. P. ..... Asheville
Anders, McT. G. ..... Gastonia
Anderson, Albert ..... Raleigh
Anderson, Chas. A. ..... Burlington
Anderson, Thos. Eli ..... Statesville
*Archery, L. M. ..... Concord
*Asbury, F. E. ..... Asheboro
Ashworth, Benj. L. ..... Marion
Ashworth, W. C. ..... Greensboro
*Attmore, Geo. S. ..... Stonewall
Averitt, K. G. ..... Cedar Creek
*Bahnson, H. T. ..... Winston-Salem
Baker, J. M. ..... Tarboro
Banner, Chas. W. ..... Greensboro
*Barrier, P. A. ..... Mt. Pleasant
Bass, H. H. ..... Durham
Battle, J. T. J. ..... Greensboro
*Battle, Kemp P. ..... Raleigh
*Battle, S. W. ..... Asheville
*Beall, Wm. P. ..... Greensboro
*Bellamy, W. J. H. ..... Wilmington
Boddie, N. P. ..... Durham
*Bolton, Mahlon ..... Rich Square
*Booth, Samuel D. ..... Oxford
Brown, G. A. ..... Mt. Ulla
Brown, J. S. ..... Hendersonville
Brownson, W. C. ..... Asheville
*Bullock, D. W. ..... Wilmington
Burrus, John T. ..... High Point
Bynum, John ..... Winston-Salem
*Caldwell, D. G. ..... Concord
Carroll, E. D. Dixon ..... Raleigh
*Cheatham, Archibald ..... Durham
Cheesborough, Thos. P. ..... Asheville
*Clark, G. L. ..... Clarkton
Cotton, Clyde E. ..... Asheville
Council, J. B. ..... Salisbury
*Covington, J. M. ..... Wadesboro
Cox, E. L. ..... Jacksonville
*Croom, J. D. ..... Maxton
Crowell, A. J. ..... Charlotte
Crowell, L. A. ..... Lincolnton
Daligny, Charles ..... Troy
*Dalton, David N. ..... Winston-Salem
Davis, Thomas W. ..... Winston-Salem
Davidson, John E. S. ..... Charlotte
DeArmon, J. McC. ..... Charlotte
*Denny, Wm. W. ..... Pink Hill
Dickinson, E. T. ..... Wilson
*Dillard, Richard, Jr. ..... Edenton
*Dodson, H. H. ..... Greensboro
*Duffy, Charles ..... New Bern
*Duffy, Francis ..... New Bern
Eddleman, H. M. ..... Gastonia
Edgerton, Jas. L. ..... Hendersonville
*Edwards, G. C. ..... Hookerton
Edwards, J. D. ..... Siler City
Ellis, R. C. ..... Shelby
*Faison, I. W. ..... Charlotte
*Faison, Wm. W. ..... Goldsboro
*Fletcher, M. H. ..... Asheville
Flippin, Samuel T. ..... Siloam
*Fox, M. F. ..... Guilford College
*Freeman, Richard A. ..... Burlington
Galloway, W. C. ..... Wilmington
Garrison, David A. ..... Gastonia
Gibbon, Robert L. ..... Charlotte
*Gilmer, Chas. S. ..... Greensboro, R. 6
Gilreath, Frank H. ..... N. Wilkesboro
Goley, Wm. R. ..... Graham
*Goodman, E. G. ..... Lanvale
Goodwin, A. W. ..... Raleigh
Gouger, Geo. J. ..... Concord
Gove, Anna M. ..... Greensboro
Grady, James C. ..... Kenly
Grady, Wm. Earle ..... Tryon
*Graham, Joseph ..... Charlotte
*Graham, Wm. A. ..... Charlotte
*Griffin, J. A. ..... Clayton

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*Deceased.

Griggs, W. T. ..... Poplar Branch
*Hall, Wright ..... Wilmington
*Halsey, B. F. ..... Roper
*Hargrove, R. H. ..... Robersonville
Harris, F. R. ..... Henderson
*Harris, I. A. ..... Weaverville
Harrison, Edmund ..... Greensboro
Harris, A. H. ..... Wilmington
Hays, Benj. K. ..... Oxford
*Haywood, F. J. ..... Raleigh
*Haywood, Hubert, Sr. ..... Raleigh
*Herring, B. S. ..... Wilson
*Hicks, Wm. N. ..... Durham
*Hicks, Romeo ..... Henrietta
Highsmith, Chas. ..... Dunn
Highsmith, J. F. ..... Fayetteville
*Hill, L. H. ..... Germantown
Holloway, Robt. L. ..... West Durham
Holt, Wm. P., Sr. ..... Erwin
Holt, Wm. T. ..... Greensboro
Houck, Albert F. ..... Lenoir
Hubbard, C. C. ..... Farmer
*Hudson, Wm. L. ..... Dunn
*Hughes, Francis W. ..... New Bern
Hunter, L. W. ..... Charlotte
Ingram, Chas. B. ..... Mt. Gilead
Irwin, J. R. ..... Charlotte
Jenkins, Chas. L. ..... Raleigh
Jewett, Robert D. ..... Wilmington
Johnson, N. M. ..... Durham
*Jones, Clara E. ..... Goldsboro
Jones, A. G. ..... Walnut Cove
Jordan, Chas. S. ..... Asheville
Jordan, T. M. ..... Raleigh
Judd, J. M. ..... Varina
Julian, Charles A. ..... Greensboro
Kent, Alfred A., Winter Park, Fla.
Kerr, J. Edwin ..... Winston-Salem
*Knight, J. B. H. ..... Williamston
Knight, Wm. P. ..... Greensboro
Knox, A. W. ..... Raleigh
Koonce, S. E. ..... Wilmington
Lamm, Isaac W. ..... Lucama
*Laughinghouse, Chas. O'H., Raleigh
*Leggett, Kenelm ..... Hobgood
Lewis, Geo. W. ..... Wilson
Lewis, H. W. ..... Jackson
*Lewis, R. H. ..... Raleigh
Linville, A. Y. ..... Winston-Salem
*Long, Benj. L. ..... Hamilton
*Long, Geo. W. ..... Graham
Long, H. F. ..... Statesville
*Long, J. W. ..... Greensboro
*Love, W. J. ..... Wilmington
Lyle, S. H. ..... Franklin
McAnally, W. J. ..... High Point
McBrayer, L. B. ..... Southern Pines
McCain, Wm. R. ..... High Point
McCampbell, John ..... Morganton
*McDonald, A. D. ..... Wilmington
McGeachy, R. S. ..... Greenville
McGee, J. W. ..... Raleigh
*McKay, A. M. ..... Summerville
*McKay, John A. ..... Buies Creek
McKay, Joseph F. ..... Buies Creek
*McKee, James ..... Raleigh
*McKenzie, W. W. ..... Salisbury
McLaughlin, J. E. ..... Statesville
McMillan, Benj. F. ..... Red Springs
*McMillan, J. D. ..... Lumberton
*McMillan, J. L. ..... Red Springs
McMillan, W. D. ..... Wilmington
*McNeill, J. W. ..... Fayetteville
*McNeill, Wm. M. ..... Buies Creek
Manning, I. H. ..... Chapel Hill
Manning, J. M. ..... Durham
Menzies, H. C. ..... Hickory
Michaux, E. R. ..... Greensboro
*Miller, J. F. ..... Goldsboro
*Minor, Chas. L. ..... Asheville
*Misenheimer, C. A. ..... Charlotte
*Misenheimer, Theo. F. ..... Morven
*Monroe, W. A. ..... Sanford
*Montgomery, John C. ..... Charlotte
Moore, C. E. ..... Wilson
Moore, Edwin G. ..... Elm City
Morris, J. A. ..... Oxford
Moseley, Chas. W. ..... Greensboro
Munroe, J. P. ..... Charlotte
Nelson, R. J. ..... Robersonville
Nisbet, W. O. ..... Charlotte
*Nicholson, J. L. ..... Richlands
Nicholson, P. A. ..... Washington
*Nicholson, Sam T. ..... Washington
*Noble, R. J. ..... Selma
Parker, G. E. ..... Benson

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*Deceased.

Parrott, J. M. ..... Kinston
Parrott, Wm. Thomas ..... Kinston
*Pate, Wm. T. ..... Gibson
Pemberton, Wm. D. ..... Concord
Person, James B., Jr. ..... Selma
*Perry, M. P. ..... Macon
Pfohl, Samuel F. ..... Winston-Salem
*Pharr, T. F. ..... Concord
*Pharr, Wm. W. ..... Charlotte
*Phillips, Matthew D. ..... Dalton
*Picot, L. J. ..... Littleton
Pope, Henry T. ..... Lumberton
Pressly, G. W. ..... Charlotte
*Prince, D. M. ..... Laurinburg
Rankin, W. S. ..... Charlotte
Redding, Alex H. ..... Asheboro
*Register, Edw. C. ..... Charlotte
Reid, Geo. P. ..... Forest City
Reitzel, Claude E. ..... High Point
Reynolds, C. V. ..... Asheville
*Ritter, F. W. ..... Moyock
Roberson, Chas. ..... Greensboro
Rodman, J. C. ..... Washington
Rodwell, J. W. ..... Mocksville
Rogers, Wiley A. ..... Franklin
Royster, H. A. ..... Raleigh
*Royster, W. I. ..... Raleigh
Sawyer, C. J. ..... Windsor
*Schaub, O. P. ..... Winston-Salem
Schonwald, J. T. ..... Wilmington
Sevier, D. E. ..... Asheville
Sevier, J. T. ..... Asheville
*Shaffner, J. F., Sr., Winston-Salem
Shields, H. B. ..... Carthage
Shamburger, J. B. ..... Star
Sikes, G. T. ..... Creedmoor
*Smith, J. B. ..... Pilot Mountain
Smith, R. A. ..... Goldsboro
*Snipes, E. P. ..... Jonesboro
Spainhour, Ellis H., Winston-Salem
*Speight, R. H., Sr. ..... Whitakers
Spencer, W. O. ..... Winston-Salem
Stamps, Thos. ..... Lumber Bridge
Stanton, D. A. ..... High Point
*Stevens, J. A. ..... Clinton
Stevens, M. L. ..... Asheville
Stewart, H. D. ..... Monroe
Stokes, Jas. Ernest ..... Salisbury
Street, M. E. ..... Glendon
Strickland, Edw. F., Winston-Salem
Stringfield, Thos ..... Waynesville
Strong, Chas. Moore ..... Charlotte
Summerell, E. M. ..... China Grove
*Summers, Chas. L., Baltimore, Md. (Forsyth Co.)
Tayloe, D. T., Sr. ..... Washington
*Taylor, I. M. ..... Morganton
Tennent, G. S. ..... Asheville
*Thomas, G. G. ..... Wilmington
*Trantham, H. T. ..... Salisbury
*Tull, Henry ..... Kinston
Van Poole, C. M. ..... Salisbury
Vestal, W. J. ..... Lexington
*Von Ruck, Karl ..... Asheville
Walker, H. D. ..... Elizabeth City
*Ward, W. H. ..... Plymouth
*Way, J. Howell ..... Waynesville
Weaver, H. B. ..... Asheville
Wessell, Jno. C. ..... Wilmington
*Wharton, L. D. ..... Smithfield
Whisnant, A. M. ..... Charlotte
*Whitaker, R. A. ..... Kinston
White, J. W. ..... Wilkesboro
*Whitehead, John ..... Salisbury
*Whitehead, W. H. ..... Rocky Mount
Whitfield, Wm. Cobb ..... Grifton
*Whittington, W. P. ..... Asheville
Whittington, Wm. W. ..... Snow Hill
Williams, John D., Guilford Station
*Williams, J. H. ..... Asheville
Wilson, A. R. ..... Greensboro
Wood, J. W. ..... Boiling Springs
Wright, Jno. B. ..... Raleigh
Yarborough, Richard F., Louisburg
*Young, R. S. ..... Concord

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*Deceased.

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

*L. McL. Tiffany.....Baltimore, Md.
W. W. Keen.....Philadelphia, Pa.
J. Allison Hodges.....Richmond, Va.
*R. L. Payne.....Norfolk, Va.
*J. N. McCormack.....Bowling Green, Ky.
R. L. Payne, Jr.....Norfolk, Va.
*J. L. Ludlow, C. E.....Winston-Salem
Paul V. Anderson.....Richmond, Va.
Stuart McGuire.....Richmond, Va.
William J. Mayo.....Rochester, Minn.
William Seaman Bainbridge.....New York, N. Y.
William Sharpe.....New York, N. Y.
William McKim Marriott.....St. Louis, Mo.
James K. Hall.....Richmond, Va.

*Deceased.

OFFICERS, 1930-1932

OFFICERS, 1930-1931

President—Dr. J. G. Murphy.....Wilmington
President-elect—Dr. M. L. Stevens.....Asheville
First Vice-President—Dr. C. A. Julian.....Greensboro
Second Vice-President—Dr. J. W. Davis.....Statesville
Secretary-Treasurer—Dr. L. B. McBrayer (1928-1931).....Southern Pines

OFFICERS, 1931-1932

President—Dr. M. L. Stevens.....Asheville
President-elect—Dr. John B. Wright.....Raleigh
First Vice-President—Dr. C. W. Banner.....Greensboro
Second Vice-President—Dr. W. W. Sawyer.....Elizabeth City
Secretary-Treasurer—Dr. L. B. McBrayer (1931-1934).....Southern Pines

COUNCILORS, 1931-1934

First District—Dr. C. B. Williams.....Elizabeth City
Second District—Dr. K. B. Pace.....Greenville
Third District—Dr. J. T. Hoggard.....Wilmington
Fourth District—Dr. C. F. Strosnider.....Goldsboro
Fifth District—Dr. A. B. Holmes.....Fairmont
Sixth District—Dr. W. M. Coppridge.....Durham
Seventh District—Dr. Addison G. Brenizer.....Charlotte
Eighth District—Dr. Thos. C. Redfern.....Winston-Salem
Ninth District—Dr. M. R. Adams.....Statesville
Tenth District—Dr. Joseph B. Greene.....Asheville

CHAIRMEN OF SECTIONS, 1931-1935

Public Health and Education—Dr. C. C. Hudson.....Greensboro
Surgery—Dr. Roy B. McKnight.....Charlotte
Opthalmology and Otorhinolaryngology—Dr. V. K. Hart.....Charlotte
Cynecology and Obstetrics—Dr. John Watkins.....Asheville
Pediatrics—Dr. Sam F. Ravenel.....Greensboro
Practice of Medicine—Dr. William H. Smith.....Goldsboro

DELEGATES TO AMERICAN MEDICAL ASSOCIATION, 1931-1933

Dr. H. A. Royster, 1930 and 1931, inclusive.....Raleigh
Dr. A. J. Crowell, 1930 and 1931, inclusive.....Charlotte
Dr. M. L. Stevens, 1931 and 1932, inclusive.....Asheville
Dr. J. K. Pepper, 1932 and 1933, inclusive.....Winston-Salem
Dr. T. W. M. Long, 1932 and 1933, inclusive.....Roanoke Rapids

Alternates

Dr. Joseph B. Greene, Asheville, for Dr. H. A. Royster.
Dr. L. W. Kornegay, Rocky Mount, for Dr. A. J. Crowell.
Dr. C. W. Banner, Greensboro, for Dr. M. L. Stevens.

DELEGATES TO MEDICAL SOCIETY OF VIRGINIA

Dr. E. S. Boice.....Rocky Mount
Dr. R. L. Kendrick.....Elizabeth City
Dr. W. G. Suiter.....Weldon
Dr. W. Bernard Kinlaw.....Rocky Mount
Dr. John Cotton Tayloe.....Washington
Dr. W. M. Johnson.....Winston-Salem
Dr. J. W. McGehee.....Reidsville
Dr. Fred R. Taylor.....High Point

DELEGATES TO MEDICAL SOCIETY OF SOUTH CAROLINA

Dr. T. C. Bost.....Charlotte
Dr. L. M. Griffith.....Asheville
Dr. Lucius N. Glenn.....Gastonia
Dr. J. W. McKay.....Charlotte
Dr. John W. MacConnell.....Davidson
Dr. John P. Kennedy.....Charlotte

DELEGATES FROM MEDICAL SOCIETY OF SOUTH CAROLINA

Dr. Kenneth M. Lynch, *President*.....Charlestown, S. C.
Dr. E. A. Hines, *Secretary*.....Seneca, S. C.
Dr. Hugh Smith.....Greenville, S. C.
Dr. D. Lesesne Smith.....Spartanburg, S. C.
Dr. Wm. Weston.....Columbia, S. C.
Dr. J. W. Jervey.....Greenville, S. C.

DELEGATES TO NORTH CAROLINA DENTAL SOCIETY

Dr. T. C. Redfern.....Winston-Salem
Dr. W. H. Sprunt, Jr.....Winston-Salem
Dr. R. L. Carlton.....Winston-Salem
Dr. Leroy J. Butler.....Winston-Salem
Dr. S. D. Craig.....Winston-Salem
Dr. J. Roy Hege.....Winston-Salem
Dr. Wingate M. Johnson.....Winston-Salem
Dr. John Kerr Pepper.....Winston-Salem
Dr. S. W. Rankin.....Winston-Salem
Dr. A. C. Banner.....Greensboro
Dr. Harry L. Brockman.....High Point
Dr. Phillip W. Flagge.....High Point
Dr. H. B. Hiatt.....High Point
Dr. R. O. Lyday.....Greensboro
Dr. K. B. Geddie.....High Point
Dr. Kenan Casteen.....Leaksville
Dr. S. G. Jett.....Reidsville
Dr. John B. Ray.....Leaksville
Dr. Fred C. Hubbard.....North Wilkesboro
Dr. C. S. Sink.....North Wilkesboro
Dr. James H. McNeill.....North Wilkesboro
Dr. Charles G. Bryant.....Jonesville

Dr. R. C. Mitchell.....Mount Airy
Dr. S. F. Tillotson.....Pilot Mountain
Dr. G. C. Gambrell.....Lexington

DELEGATES FROM NORTH CAROLINA DENTAL SOCIETY

Dr. W. M. Robey.....Charlotte
Dr. W. D. Gibbs.....Charlotte
Dr. S. B. Bivens.....Charlotte
Dr. H. O. Lineburger.....Raleigh
Dr. E. B. Howle.....Raleigh
Dr. J. M. Fleming.....Raleigh
Dr. S. L. Bobbitt.....Raleigh
Dr. Everett Smith.....Raleigh
Dr. L. M. Edwards.....Durham
Dr. M. T. Holland.....Durham
Dr. D. K. Lockhart.....Durham
Dr. J. T. McCracken.....Durham
Dr. E. W. Shackleford.....Durham
Dr. J. T. Underwood.....Durham
Dr. H. C. Carr.....Durham
Dr. J. S. Betts.....Greensboro
Dr. L. G. Coble.....Greensboro
Dr. J. H. Wheeler.....Greensboro
Dr. D. F. Keel.....Greensboro
Dr. J. P. Jones.....Chapel Hill
Dr. H. V. Murray.....Burlington
Dr. J. S. Spurgeon.....Hillsboro
Dr. A. H. Fleming.....Louisburg
Dr. L. R. Gorham.....Rocky Mount
Dr. C. E. Minges.....Rocky Mount

COMMITTEES

Medical Society Foundation

Dr. J. P. Matheson, *Chairman*, 2 years.....Charlotte
Dr. M. L. Stevens, 1 year.....Asheville
Dr. L. B. McBrayer, 0 years.....Southern Pines
Dr. J. B. Sidbury, 3 years.....Wilmington
Dr. J. M. Parrott, 4 years.....Kinston

Obituaries

Dr. C. M. Van Poole, *Chairman*.....Salisbury
Dr. J. F. Abel.....Waynesville
Dr. Wm. H. Smith.....Goldsboro

Legislation

Dr. B. J. Lawrence, *Chairman*.....Raleigh
Dr. T. W. M. Long.....Roanoke Rapids
Dr. John T. Burrus.....High Point

Moore County Medical Society Medal

Dr. W. C. Mudgett, *Chairman*.....Southern Pines
Dr. J. M. Parrott.....Kinston
Dr. John Q. Myers.....Charlotte

Committee to Confer with Like Committee from North Carolina Dental Society

Dr. J. M. Parrott, *Chairman* ..... Kinston
Dr. J. T. Burrus ..... High Point
Dr. J. G. Murphy ..... Wilmington

Committee to Confer with Like Committee from State Nurses Association on Curriculum to be Used in Training Office Nurses

Dr. Karl B. Pace ..... Greenville
Dr. O. L. McFadyen ..... Fayetteville

Printing and Supplies

Dr. L. B. McBrayer, *ex-officio* ..... Southern Pines
Dr. P. P. McCain ..... Sanatorium
Dr. J. W. Dickie ..... Southern Pines

Committee on Hospitals

Dr. J. F. Highsmith ..... Fayetteville
Dr. Henry F. Long ..... Statesville
Dr. J. T. Burrus ..... High Point
Dr. John Q. Myers ..... Charlotte

Board of Medical Examiners of the State of North Carolina

President—Dr. W. Houston Moore ..... Wilmington
Secretary-Treasurer—Dr. John W. MacConnell ..... Davidson
Dr. Paul H. Ringer ..... Asheville
Dr. Foy Roberson ..... Durham
Dr. Thomas W. M. Long ..... Roanoke Rapids
Dr. J. K. Pepper ..... Winston-Salem
Dr. David T. Tayloe ..... Washington

State Board of Examiners for Nurses

President—Miss Bessie Chapman, R. N. ..... Greensboro
Secretary-Treasurer—Mrs. Dorothy Conyers, R. N. ..... Greensboro
Miss Josephine Kerr, R. N. ..... Charlotte
Dr. R. W. Petrie (from Hospital Association) ..... Lenoir
Dr. C. H. Peete (from Medical Society 1931-34) ..... Warrenton

Committee to Confer with Like Committee from State Hospital Association in Regard to Collection of Hospital Bills and Professional Fees in Other States

Dr. R. B. Davis, *Chairman* ..... Greensboro
Dr. Ernest S. Bullock ..... Wilmington
Dr. William Spicer ..... Goldsboro

Arrangements

Dr. R. L. Carlton, *Chairman* ..... Winston-Salem
Place of Meeting ..... Winston-Salem
Date ..... April 18, 19 and 20, 1932
Headquarters ..... Robert E. Lee

TRANSACTIONS

OF THE

SEVENTY-EIGHTH ANNUAL SESSION

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

DURHAM, APRIL 20, 21, 22, 1931

MONDAY, APRIL 20, 1931

The House of Delegates met in the Washington Duke Hotel, Durham, in Lecture Room A, on Monday, April 20, 1931, and was called to order at 8:15 p. m., by the President, Dr. J. G. Murphy. The roll was then called by the Secretary, Dr. L. B. McBrayer, and the following delegates were present:

ROLL CALL

County	*Delegate*
Alamance-Caswell	G. L. Carrington
Anson	
Ashe	
Avery	
Beaufort	T. C. Britt
Bertie	L. B. Evans
Bladen	D. H. Bridgers
Brunswick	
Buncombe	C. V. Reynolds, Julian A. Moore, W. A. Brewton, R. E. Fox
Burke	J. W. Vernon
Cabarrus	P. R. MacFadyen
Caldwell	A. B. Goodman
Carteret	Ben F. Royal
Catawba	
Chatham	R. W. Palmer
Cherokee	N. B. Adams
Chowan-Perquimans	
Cleveland	D. T. Bridges
Columbus	G. S. Cox
Craven	D. E. Ford
Cumberland	K. G. Averitt
Currituck	
Davidson	J. R. Terry
Davie	

County	*Delegate*
Duplin	
Durham-Orange	L. S. Booker, W. M. Coppridge, Hunter Sweeny
Edgecombe-Nash	J. A. Winstead, J. G. Raby
Forsyth	W. H. Sprunt, Jr., J. K. Pepper
Franklin	R. F. Yarborough
Gaston	D. A. Garrison
Gates	
Granville	J. S. Bradsher
Greene	W. B. Murphy
Guilford	R. B. Davis, J. W. Tankersley, C. E. Reitzel, J. T. Burrus, C. W. Banner
Halifax	T. W. M. Long
Harnett	W. P. Holt, Sr.
Haywood	J. L. Reeves
Henderson	Jno. H. Woodcock
Hertford	
Hoke	P. P. McCain
Iredell-Alexander	M. R. Adams
Jackson	
Johnston	
Jones	
Lee	I. Hayden Lutterloh
Lenoir	James M. Parrott
Lincoln	L. A. Crowell
McDowell	
Macon-Clay	
Madison	
Martin	
Mecklenburg	Jas. M. Northington, S. R. Thompson, Hamilton W. McKay, J. Q. Myers, L. C. Todd
Mitchell-Watauga	
Montgomery	
Moore	C. W. Durham
New Hanover	J. F. Robertson, John H. Hamilton
Northampton	L. E. McDaniel
Onslow	
Pamlico	O. C. Daniels
Pasquotank-Camden-Dare	C. B. Williams
Pender	W. F. Taylor
Person	
Pitt	Joseph Smith
Polk	D. L. Smith
Randolph	
Richmond	W. D. James
Robeson	A. B. Holmes
Rockingham	J. W. McGhee
Rowan	C. M. Van Poole, I. E. Shafer
Rutherford	R. H. Crawford
Sampson	J. S. Brewer
Scotland	Marcus B. Wilkes

County	*Delegate*
Stanly	C. M. Lentz
Stokes	
Surry	E. C. Ashby
Swain	
Transylvania	
Union	
Vance	Thomas S. Royster
Wake	C C. Carpenter, R. P. Noble, Charles P. Eldridge, C. E. Cheek
Warren	H. H. Foster, G. H. Macon
Washington-Tyrrell	
Wayne	C. F. Strosnider
Wilkes	J. H. McNeill
Wilson	
Yadkin	
Yancey	

During the calling of the roll, Dr. C. B. Williams, the delegate from the Pasquotank-Camden-Dare Society, stated that he had a proxy to represent the Chowan-Perquimans Society, and asked the Chair if he might vote his proxy. The Chair ruled that he could not. After discussion of the matter by several members of the House of Delegates, and a question as to whether the proxy was delegated to Dr. Williams by the Society or by an individual, Dr. Williams said that it had been delegated to him by Dr. G. E. Newby, the duly elected delegate from Chowan-Perquimans. Dr. R. B. Davis, delegate from Guilford County, moved that power be given Dr. Williams to exercise his proxy, and this motion was seconded. Dr. G. G. Dixon, Councilor of the Second District, offered an amendment that Dr. Williams be allowed to vote his proxy provided the Constitution and By-Laws provide for proxy votes in the meetings of the House of Delegates. The President stated that the Constitution and By-Laws make no provision for proxy votes. Dr. Williams asked to be heard and said that parliamentary usage does not anticipate taking the negative side first. Dr. Jas. M. Northington, Delegate from Mecklenburg, discussed the matter. Dr. Williams asked to be heard on the matter again, the President ruling him out of order. Dr. Williams appealed from the ruling of the Chair. Dr. D. A. Garrison, Delegate from Gaston, moved that Dr. Williams be heard, and this motion was seconded and carried, the matter as a parliamentary proposition then being discussed by Dr. Williams. Dr. Northington asked to be heard again, the Chair ruling that since he had already spoken for five minutes he would not be permitted to speak again without the unanimous consent of the delegates present. The amendment was then put to vote and lost, there being 25 votes for it to 29 against. A roll-call vote on the original motion of Dr. Davis was then called for and was taken, resulting in a total vote of 59, 10 votes being cast for the motion and 49 against. (Several members explained their votes as follows: Dr. L. B. Evans, Bertie County: "I think it is a rather dangerous proposition for proxies to be allowed in this body, and I think, furthermore, that parliamentary usages show that proxies shall

not be allowed in law-making bodies. I vote no." Dr. Ben F. Royal, Carteret County: "Had the county society given this proxy to Dr. Williams, I would vote yes; since Dr. Newby gave him the proxy, I vote no." Dr. Charles P. Eldridge, Wake County: "If there were a representative here from the county society in question, I would vote to allow a proxy to be voted by him. There is no member present here from the society in question, and I therefore vote no.") Dr. Williams asked that a very careful record be kept of this vote. The President announced that the motion was lost. Dr. Williams appealed from the action of the House of Delegates. The Chair suggested that Dr. Williams write an amendment to the Constitution and By-Laws and submit it to the House of Delegates for their consideration and action.

Dr. L. B. McBrayer, Secretary-Treasurer, read his report and the minutes of the meetings of the Executive Committee. On motion, the report was referred to the Finance Committee.

April 20th, 1931.

ANNUAL REPORT OF THE SECRETARY-TREASURER 1930-1931

To the House of Delegates of the Medical Society of the State of North Carolina:

Your Secretary has endeavored to carry out all instructions of Society and instructions of Executive Committee. He has coöperated with all Officers and Committees in every way possible. He has attended a meeting of all State Secretaries with Officers and Board of Trustees of the American Medical Association in Chicago. Attended a meeting of the New Jersey State Medical Society and was "guest speaker" on the subject "Economics in Medicine." Attended many District and County Society meetings during the year. Edited and had printed the annual volume of transactions under the direction of the Committee on Printing. Had printed 1,000 copies of new Constitution and By-Laws, without cost to the Society.

Mailed copy transactions to each Fellow. Mailed copy program to each Fellow. Prepared and mailed out to Fellows 6,673 mimeograph letters. Official correspondence 12,139 letters sent and 319 telegrams.

Have reported to Journal American Medical Association, Southern Medical Journal, Southern Medicine and Surgery, news items, deaths, etc. Same to American College of Physicians.

Our membership in good standing at close of books April 18th, was 1,369. In process, 42, which would make total 1,411, which is about 100 less than last year at the time of meeting, which was one week later.

You would perhaps be interested in knowing what happens when the Secretary-Treasurer of a local Society sends a Doctor's dues to the State Secretary-Treasurer:

(1) The amount is entered on the cash book with the name of the Doctor whose dues it pays. (2) The card bearing this Doctor's name is taken from the card index file of unpaid dues and placed in the file

for that county of dues paid. (3) The Doctor is credited on the Treasurer's book with the amount paid and the date. (4) The Doctor's name is written on the annual membership card for that year. (5) The Doctor's name is written on an envelope, the membership card placed in it and mailed. (6) The check is deposited in the Page Trust Company, Aberdeen, to the credit of the Medical Society of the State of North Carolina. (7) The Doctor's name and address is certified to the American Medical Association as a Fellow of the Medical Society of the State of North Carolina in good standing for the current year, which automatically gives him membership in the American Medical Association. (8) Following which the Secretary-Treasurer of the County Society sending dues is notified of receipt with thanks; and the transactions covering the receipt of a Fellow's dues are completed.

Resume: Eight different items of work. The Doctor's name is written five times. Three envelopes are addressed. Six cents in postage used.

You will find the financial transactions of the Office appended hereto, as a part of this report. Also, minutes of meetings of Executive Committee.

Two Fellows of this Society each have made twenty-five trips to Raleigh before and during the sessions of the General Assembly, in an effort to help protect the interests of this Society and our profession at a personal cost to each of them of more than $250.00.

An endeavor was made to secure the passage of a bill that would allow our Society to procure group life, accident and health insurance, the bill being introduced by Dr. T. W. M. Long, which would have saved the Fellows of our Society more than $100,000 annually in premiums for this kind of insurance, but it was killed in Committee, the Insurance Companies being opposed to its passage, though quite ready to write it if the bill did pass. Your Secretary is now endeavoring to secure this kind of insurance in Virginia, as the law makes it possible in that State and many others. The splendid chairman of your efficient Committee on Legislation will make a report on the doings of the Legislature and the fine work done by that Committee, but it is not out of place for me to say that as far as my knowledge goes no Committee on Legislation has had the large amount of work to do that fell to the lot of Dr. Lawrence and his Committee this year. It is also appropriate to express my appreciation, in which I know the Society joins most heartily, of the splendid work done in the General Assembly by the Doctor members, Senators Burrus and Hardy and Representatives Long, Rogers, Killian, DeHart and Higgins. Our profession was well represented.

There has been some inquiries during the year, and particularly since January of this year, as to the cause or reason for making the State Society dues $5.00 per annum. Let me say first that so far as I am personally concerned, it makes no difference to me whether any dues are charged, but I do crave that this Society shall fully perform its duty to itself and the people of this State.

A bit of history is appropriate here. In 1928 a Committee was appointed to revise the Constitution and By-Laws. This Committee

reported to the 1929 Session and the report was carried over until the next year, as required for amendments to the Constitution, and was printed in the 1929 volume of the transactions. A letter was sent to the Secretary of every County Society who had reported such an officer to the Secretary-Treasurer of this Society, calling his attention to the revised Constitution and By-Laws and the pages in 1929 volume of transactions where the same could be found and requesting him to bring this matter to the attention of his Society.

At the 1930 Session the matter was brought up in regular order, printed copies of the revised edition having been distributed to every member of the House of Delegates. Special attention was called to the fact that the adoption of the revision would make the dues $5.00. The vote for adoption was unanimous.

Was there need for making the annual dues $5.00? First, let me say that if you will investigate you will find that the work of this Society is conducted as economically as is possible, as a matter of fact, much too economically. The basic bid for printing 1931 transactions, 1,775 copies, including our programs, 3,000 copies, is $1,900.00. The Society has the use of mimeograph, addressograph, letter folding machine, etc., without cost, and these are necessary to transact the work of the Secretary's office efficiently and economically. The President has no travel expense; the Secretary has no travel expense; the Councilors have a travel expense, but not many of them have claimed it. We do not pay the expense of our delegates to the American Medical Association; most State Medical Societies do; we do not pay the expense of our invited speakers, most if not all other Societies do. We do not pay the expense of Committees that we appoint; at one Committee meeting there were three who traveled 100 miles and one who traveled 200 miles. At a meeting of the Committee that made the suggested fee bill now used by the Industrial Commission, one member traveled 250 miles, while others traveled 100 miles and spent all of two days and two nights on the job, all on their own expense. And for whom was this Committee working? For every Fellow of this Society who does or may hereafter do any professional work for anyone covered by the Workmen's Compensation Act.

How would you like to abolish all dues and require that the money that is now saved on the cost of liability insurance and 50% of the amount received for professional work to compensation cases, be turned over to the Society as expense money. These two items alone would amount to more than $100,000 annually, and that is what the Society has done for its Fellows. Then add to that a saving in accident, health, life and automobile insurance that would have been in effect for some time but for our insurance laws and our insurance commissioner, and will no doubt be arranged for in the next few months, and you have another $100,000. Should we not be appreciative of Fellowship in a Society that can do so much for its Fellows in a financial way and be willing to pay the expense of its operations?

However, the financial returns, great as they are, are a small part of the value of Fellowship in your State Medical Society. The American Medical Association, and all lesser medical organizations of what-

soever kind in the United States, realize the importance of membership in your State Medical Society and make that a pre-requisite to membership. State Boards of Examiners refuse to grant a license by endorsement without a certificate of good standing in the State Medical Society from which the applicant comes. The United States Public Health Service requires certificates of membership in the applicant's State Medical Society. The companies that write liability insurance against malpractice will not write a policy for a Doctor who does not belong to his County and State Medical Society. Most Life Insurance companies require their examiners to belong to local and State Medical Societies. These organizations seem to think that it is important that a physician should be a part and parcel of organized medicine; in fact, they seem to think it a necessity.

Our State Government grants us the privilege and places upon us the duty of electing from among our Fellows the State Board of Medical Examiners. There was quite much talk in the beginning of the Session of our General Assembly of taking that away from us, but the idea was soon abandoned. We have the same duty and privilege in regard to four of the nine members of the State Board of Health. There was much talk of taking this away from us also, but after many conferences, Governor Gardner lent his influence and we will elect our four members of the State Board of Health at this meeting. Heretofore the State Board of Health filled any vacancy occurring among the members elected by this Society, but the Governor readily agreed that the Executive Committee should do this in the future. The Governor, in this way, recognized the wisdom of our new Constitution and By-Laws creating the Executive Committee.

It is unnecessary for us to call to your attention the value of our Scientific Sessions; you have visual and aural evidence of this, but it might be well to remind you that they are considered by those competent to judge the equal of any and better than most.

In addition to the foregoing, the dues we pay to our State Society automatically confers membership in the American Medical Association without further expense. To become a Fellow of the American Medical Association you must pay $7.00 direct to them, but this also gives you the Journal of the American Medical Association for one year, the best medical journal in the world, the editorials written by Dr. Fishbein, who is our guest at this meeting, keep a Doctor well posted on the advances in medicine, provided he reads them. Or the $7.00 may be credited on the subscription price of any of the special journals issued by the American Medical Association. Let me say that $7.00 will not pay the subscription to any National Medical Journal anywhere in striking distance of the Journal of the American Medical Association; and your connection with organized medicine again saves you dollars every year.

Notwithstanding the fine organization and fine work of our Society, as mentioned above and many additional items that are known to most of you, do not for one moment allow yourself to think that we have reached perfection and there is nothing additional left to do. Far from it.

Our Constitution, Section 11, "Purposes of the Society," among other things says: "The purposes of this Society shall be * * * * * the enlightenment and direction of public opinion in regard to the great problems of state medicine and Public Health, so that the profession shall become * * * * * more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life." Do we grade 100 on the purposes of our Society as to that part of our Constitution just quoted? We do not. We have fallen into the habit of electing our four members of the State Board of Health, the Governor usually appointing three or more members of our Society out of his five, and we straightway forget all about it and leave it to them to do. Mayhap some of us sometimes grumble at them for doing it. The State Board of Health and the local Health Departments cannot carry out the command of our Constitution for us without our support and concrete assistance. Our Society has never gone about this duty in a well-planned, efficient and organized way. It owes it to itself and to the people of our State to do this, and it is impossible for the people of this State to have what they are entitled to in the diagnosis, treatment and prevention of disease without it. The same obligation and duty rests on the County Medical Society. And how are you going to do it? That is too much to discuss here, but it has been done in other states.

Then again, we cannot escape the responsibility and duty of delivering to all the people of our state the scientific medical knowledge extant at the time, to the end that all and every one may have the medical and surgical advice and treatment that they need and that they are entitled to. Everyone, doctor or layman, knows that we do not grade 100 on this point and when the thinking laity begin to take cognizance of such failures on the part of our organization, we appear in a bad light and lose to that extent the prestige, influence and leadership that we have had. No one for a moment discounts the ability of the medical profession in our state, but some of our ablest and most sympathetic laymen are beginning to think that our methods of approach to this important principal are faulty, or we have not given the matter sufficient thought to enable us to cope with the situation as its importance demands.

Our Society should have a liason officer, or committee, whose duty it would be to meet with and advise with, in regard to medical matters, all lay organizations, for example, officers State Parent Teachers' Association; officers State Federation of Women's Clubs; State Officers Luncheon Club; officers State Teachers' Association, etc. Then the County Medical Society should have a similar officer or committee to contact and advise with the City or County units of such organizations.

There are many other things that I could mention, but these suffice to indicate to you the kind of organization and work that organized medicine must do in North Carolina, if it expects to continue to hold the respect, confidence and leadership heretofore attained, and continues to maintain its own self-respect because of duty well and fully done.

I trust that the Fellows of this Society will at least be willing to pay the small amount of dues necessary to carry on the work of the Society as the needs may require, and let us not forget that the County Medical Society is the foundation stone of organized medicine, and that organized medicine lives and moves and has its being from and upon this foundation stone.

MINUTES OF MEETING OF EXECUTIVE COMMITTEE OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA AT YADKIN HOTEL, SALISBURY, SEPTEMBER 25th, 1930

The matter of the award of Moore County Medical Society Medal was under consideration. It was moved by Dr. Dixon that only Fellows of the Society shall be eligible for award of the medal, and the Secretary was instructed to notify the Medal Committee.

It was decided to continue the program for the 1931 meeting on the same general plan as last year. A committee of three was appointed to study the set-up of the program for the 1932 meeting of the Society as follows: President Murphy, Dr. W. H. Smith, President-elect Stevens and Dr. Hicks, and report to the Executive Committee.

It was decided that it would be well for the State Society through a committee, to render service in the malpractice suits and particularly to look into each case and see if any physician had by any unfortunate word, been the cause of the suit being brought and endeavor to counteract such effect, conferring with the physician supposed to be responsible and render any further advisory service that might be possible. It was agreed that the councilor should have charge of the cases arising in his district and that he was authorized to appoint additional Fellows to work with him, or if he thought wise, appoint a special committee. The Secretary was instructed to get out a letter to all Fellows in regard to the matter and request prompt report of all suits, or threatened suits, to the Secretary of the Medical Society of the State of North Carolina who would in turn transmit them to the councilor of the district in which they occur.

It was the consensus of opinion of the Executive Committee that the blank furnished to be filled out for applicants for marriage license is unfair to the medical profession, and the State Board of Health was requested to secure the change of the blank in accord with the scientific examination necessary in such cases.

The following resolution was offered by Dr. M. L. Stevens, President-elect, and unanimously adopted:

> Resolved—That we endorse Dr. J. T. Burrus in all his attempts to improve the status of the medical profession, but we do not believe that the time is ripe for a law creating an examining board to certify specialists.

The matter of repeal of the $25.00 privilege tax on physicians was referred to the Committee on Legislation with the request that it take such action as might seem wise in the premises.

Councilor Dr. J. F. Abel made an extended statement in regard to the need of a branch state laboratory in western North Carolina, preferably located at Asheville and a branch Tuberculosis Sanatorium located in western North Carolina. This was referred to the Committee on Legislation with power to act as seemed wise.

Moved and carried that members of the Executive Committee be paid 8c per mile travel and hotel bills in attendance upon the meetings.

Respectfully submitted,

L. B. McBRAYER,

Secretary-Treasurer.

FINANCIAL STATEMENT

April 26th, 1930—April 18th, 1931

RECEIPTS

Balance April 25, 1930		$ 868.89	
Dues	$6,173.50		
Transferred from Savings	3,500.00		
Dues collected		9,673.50	
Interest on certificates of deposit		75.84	
Miscellaneous items sent A. M. A.		1.50	
Dividend, Rowland check		1.89	
List of county societies and officers		3.50	
Total Receipts			$10,625.12

DISBURSEMENTS

Check No. 620—Sandhill Citizen, 300 Auxiliary programs	$ 7.25
" " 621—Dr. L. B. McBrayer, salary May, June, July, August	200.00
" " 622—Helen B. Eisenberger, stenographic work	50.00
" " 623—Miss Mary Robinson, reporting and expenses	51.60
" " 624—Dr. L. B. McBrayer, expenses Pinehurst	6.95
" " 625—Morris Eadie, services Pinehurst meeting	4.55
" " 626—Stuart Cameron, services Pinehurst meeting	2.00
" " 627—Western Union, April messages	10.08
" " 628—The Carolina, expenses Miss Robinson, reporter	20.50
" " 629—Dr. L. B. McBrayer, postage	6.26
" " 630—Geneva Hall, clerical work on Transactions	36.00
" " 631—Dr. L. B. McBrayer, postage	4.66
" " 632—Geneva Hall, 5 days Transactions	15.00
" " 633—Geneva Hall, 3 days Transactions	10.50
" " 634—Master Reporting Company, Pinehurst meeting	172.18
" " 635—Dr. G. M. Brooks, dues overpaid	3.50
" " 636—Dr. L. B. McBrayer, postage	2.00
" " 637—Dr. H. B. Shields, refund dues overpaid	2.00
	$ 605.03

Disbursements brought forward	$	605.03
Check No. 638—Western Union, May service	$	11.55
" " 639—Miss Mary Robinson, reporting		106.17
" " 640—Christian Printing Company, stationery		90.62
" " 641—Geneva Hall, work on Transactions		4.81
" " 642—Western Union, June service		.60
" " 643—Hursey & Company, President's Jewel		13.00
" " 644—Dr. R. B. Davis, traveling expenses councilor		21.40
" " 645—Stephen G. Worth, reporter		97.45
" " 646—Seeman Printery, Inc., part payment on Transactions		500.00
" " 647—D. G. Stutz, express Constitution and By-Laws		3.36
" " 648—Seeman Printery, Inc., postage and mailing Transactions		192.82
" " 649—Western Union, July messages		.90
" " 650—D. G. Stutz, freight Transactions		2.84
" " 651—Page Trust Company, note		100.00
" " 652—Dr. L. B. McBrayer, salary Sept., Oct., Nov., Dec.		200.00
" " 653—Seeman Printery, Inc., part payment Transactions		1,000.00
" " 654—Yadkin Hotel, Executive Committee meeting		6.00
" " 655—Dr. J. G. Murphy, expenses Executive Committee meeting		54.00
" " 656—Dr. L. B. McBrayer, expenses Executive Committee meeting		16.75
" " 657—Dr. G. G. Dixon, expenses Executive Committee meeting		36.00
" " 658—Dr. V. M. Hicks, expenses Executive Committee meeting		19.20
" " 659—Western Union, September messages		.33
" " 660—Dr. L. B. McBrayer, postage, letters re legislation		34.92
" " 661—Ownby Printing Company, 1,000 letterheads 8th District		6.00
" " 662—Seeman Printery, balance on Transactions		755.49
" " 663—Western Union, October messages		1.50
" " 664—Dr. T. C. Bost, expenses Executive Committee meeting		7.20
" " 665—J. N. Powell, postage, letter re malpractice suits		40.00
" " 666—Evelyn Thomas, services, letter re malpractice suits		8.00
" " 667—Mildred Thomas, services, letter re malpractice suits		7.50
" " 668—Western Union, November messages		1.50
		$3,944.94

Disbursements brought forward		$3,944.94
Check No. 669	Sandhill Citizen, membership cards	$ 12.50
" " 670	Western Union, December messages	2.38
" " 671	Mildred Thomas, 3 days services clerical work	9.00
" " 672	Dr. L. B. McBrayer, postage	4.30
" " 673	Dr. L. B. McBrayer, postage	3.70
" " 674	Helen B. Eisenberger, January services	135.00
" " 675	Dr. L. B. McBrayer, salary Jan., Feb., March, April	200.00
" " 676	Fayetteville Office Supply, index guides	1.97
" " 677	C. L. Hayes, index guides	.70
" " 678	Western Union, January messages, re legislation	84.30
" " 679	Dr. L. B. McBrayer, postage re legislation	4.40
" " 680	Central Carolina Telephone Company, January tolls	1.40
" " 681	Mildred Thomas, 1-day services re legislation	3.00
" " 682	Dr. L. B. McBrayer, postage membership cards	1.34
" " 683	H. W. Wilson Company, medical reference book	.90
" " 684	Helen B. Eisenberger, February services	135.00
" " 685	Western Union, February messages	1.85
" " 686	Dr. L. B. McBrayer, postage membership cards	4.30
" " 687	Void	
" " 688	Sandhill Citizen, 1 box envelopes	1.20
" " 689	Dr. A. H. London, Jr., refund Dr. Hart's dues	3.00
" " 690	Dr. L. B. McBrayer, postals and postage, re delegates	2.25
" " 691	Haywood Print Shop, stationery, 10th district	5.00
" " 692	Helen B. Eisenberger, March salary	135.00
" " 693	Dr. W. H. Smith, expenses as councilor 3 years	50.00
" " 694	Hursey & Company, President's Jewel	13.00
" " 695	Dr. L. B. McBrayer, postage membership cards	5.60
" " 696	Western Union, March messages	14.56
" " 697	D. G. Stutz, express envelopes for programs	.73
" " 698	Page Trust Company, certificates of deposit	5,000.00
" " 699	Miscellaneous office expense	107.12
" " 700	N. C. Tuberculosis Association, postage	30.98
" " 701	Mrs. Eugene B. Squires, directing envelopes for programs	1.50
" " 702	Margaret Silver, directing envelopes for programs	2.00
		$9,922.92

Receipts brought forward			$10,625.12
Disbursements brought forward	$9,922.92		
Check No. 703—Evelyn Thomas, directing envelopes for programs		$ 4.00	
" " 704—Sandhill Citizen, 1 box envelopes		1.50	
Total Disbursements			$ 9,928.42
Actual Cash Balance			$ 696.70

Checks outstanding:

No. 197	$ 1.00
No. 351	3.00
No. 447	1.50
No. 697	.73
No. 699	107.12
No. 700	30.98
No. 701	1.50
No. 702	2.00
No. 703	4.00
No. 704	1.50
Plus checks outstanding	$ 153.33
Page Trust Balance	$ 850.03

ANALYSIS OF EXPENDITURES

Express and freight	$ 6.93
Executive Committee Meeting	139.15
Expenses Councilors	71.40
Honorarium Secretary	600.00
Miscellaneous	265.44
Printing Transactions	2,255.49
Postage, Committee on Legislation	106.82
Preparing Copy Transactions	66.31
Other Postage	258.21
Reporting	447.90
Refunded dues	8.50
Stationery	102.82
Stenographic work	455.00
Telephone tolls	1.40
Telegrams, Committee on Legislation	84.30
Other telegrams	45.25
Miscellaneous expense Pinehurst meeting	13.50
Certificates of deposit	5,000.00
Total	$9,928.42

Balance on hand April 18th, 1931:

Actual checking account	$ 696.70	
Certificates of Deposit	6,000.00	
Total		$6,696.70

Aberdeen, N. C., April 18, 1931.

Medical Society of the State of N. C.,
Southern Pines, N. C.

Gentlemen:

We hereby certify that there is on deposit with us to the credit of the Medical Society of the State of North Carolina the sum of $6,000.00 in our Savings Department, as evidenced by Certificates of Deposit Nos. 1666, 1667 and 1668, for $1,000.00, $3,000.00 and $2,000.00, respectively.

The balance on deposit to the Society's checking account is $850.03.

Very truly yours,

D. I. McKeithen,
Secretary-Treasurer.

McK-w

The President announced the appointment of the Finance Committee: Dr. C. V. Reynolds, Chairman; Dr. W. M. Jones.

REPORT OF FINANCE COMMITTEE ON SECRETARY'S REPORT

The committee appointed to examine your Secretary-Treasurer's annual report has found it correct and in balance.

We desire at this time to express thanks and appreciation for the work well done and masterly presented.

The items of importance are so numerous that it would take a lengthy paper to consider them, but suggest that each member of this society read it section by section when he receives the Transactions.

We further suggest that the recommendations therein contained be referred to the Executive Committee with the request to put into effect such of them that seem possible.

Respectfully submitted,

C. V. Reynolds, M. D.
Wm. M. Jones, M. D.

On motion the report was adopted.

At the request of the President, Dr. McBrayer presented Dr. Morris Fishbein, Editor of the Journal of the American Medical Association and Editor of Hygeia, Chicago, Ill., who described in a brief address the organization and work of the American Medical Association.

Dr. L. B. McBrayer: Mr. President and Fellows, it is the greatest pleasure to me to present the speaker. He is one of the best informed men in the United States on matters concerning the medical profession—almost any matter you want to ask him about, whether it be scientific or organization. He is not only the editor of the Journal of the American Medical Association but is also the editor of Hygeia, and he also has a good deal to do with the other special journals issued

by the American Medical Association. He is very well informed on everything that is going on at the headquarters of the American Medical Association, and has come down here to tell us how they do things and see how we do things. He is one of the most fluent speakers I ever heard, and I am sure you will agree with me that his phrases are well rounded. It is a great pleasure to me to present the editor of the Journal of the American Medical Association, Dr. Morris Fishbein, of Chicago.

ADDRESS

Dr. Morris Fishbein

Editor, Journal of The American Medical Association
Editor Hygeia
Chicago, Ill.

Mr. President, Mr. Secretary, and Members:

It is practically impossible to come up to the kind of advance notice that Dr. McBrayer has given me on this occasion, and I hope you will not expect me to. Dr. McBrayer asked me to talk to you about the work of the American Medical Association. The American Medical Association is the largest and strongest medical association in the world. It has approximately one hundred thousand members, and the Journal of the American Medical Association has about one hundred thousand subscribers—more than all other English weekly medical journals combined. The Journal has an influence proportionate to its income. It has a total income from advertising of $750,000 a year. The income to the Association from subscriptions is $700,000 a year. The American Medical Association has a total income of almost $3,000,000 a year. A large part of its net income is being put away in order to develop a building for the Association suitable for the development of the work that is carried on.

Fifteen years ago the Association had 120 employees; today it has about 500. Our library department, which probably comes closer to the physicians of the country than any of the other departments, had in 1913 four employees and now has 28. The 28 employees in the library are concerned largely with the indexing of all the medical literature in the world and also in supplying references. They carry on also a circulating package library service, which sent out last year 2,067 packages of references to physicians who wanted to prepare papers or look up some special subject. For the sum of twenty-five cents the physician is sent anywhere from ten to fifty pamphlets and periodicals, which he may keep for a week. Though we do it for twenty-five cents, it costs in the neighborhood of one dollar or over to send out a package.

We have also a Bureau of Investigation, which is working to control quackery and patent nostrums. The people of the United States spend $700,000,000 a year on nostrums. In the Bureau of Investigation we have a cross index of more than 250,000 cards, indexing quackery. This department's work has been so efficient that in the

last five years we have accumulated $13,000,000 in libel suits brought by various cults and quacks. The Bureau is now investigating tooth pastes and mouth washes, and many nostrums. There is an expose of Listerine in the Journal of the American Medical Association this week.

The Council on Pharmacy and Chemistry, and the laboratory of the American Medical Association, analyze all of these nostrums. They develop the material published in their department and certify proprietary remedies that can be considered honest and their claims justified.

In addition, we have a Committee on Foods, which is getting interested in the question of whether any food actually contains the vitamins A, B, C, D, and E, and is also interested in proteins, hydrocarbons, and mineral salts. There is also the Council on Physiotherapy, which is just beginning to be as efficient as it might be. All of you know the strange and peculiar claims made for ultraviolet and infrared rays and other physical forces used in the treatment of disease.

Then, after the Council on Physiotherapy, we have the Bureau of Legal Medicine and Medical Legislation. We have representatives who secure for us information in Washington on all forthcoming legislation, appear before committees, and represent the Association in legislative matters.

The Bureau of Health and Public Instruction now broadcasts over our local radio station twenty minutes each day, and over a national chain five minutes each day. "Hygeia" has a circulation at present of about 80,000. Hygeia has been self-supporting and yielding a small surplus for the last five years.

We answer questions received directly from the public; we send out lecturers to medical societies and various other groups, to carry the message of health and what health can accomplish for the people throughout the United States.

We also have a biographical file, which carries a record of the medical man from the time he enters school, as a young man, until he dies. We have the most complete data on hospitals available in any organization in the United States. We have far more data on medical affairs than the Government itself, and these data are used for the protection of the public and the medical profession against frauds and impostors of all types. We check up carefully all physicians coming to the United States from abroad and by this work have ruled out over two thousand physicians with false credentials. We keep data about all physicians from newspaper clippings, and we try to write an honest obituary on the doctor when he dies.

The Journal has a division for book reviews, which issues the most honest reviews given anywhere I think, because the reviewers are given instructions to review honestly regardless of who the publisher or author may be.

Our work is organized so that we can get all the information any physician may want, on any subject. When a physician becomes a fellow of the American Medical Association he is entitled to attend

the annual meetings and to take part in the proceedings, he receives the Journal and also the Bulletin. The Bulletin circulation is 65,000 copies. It is concerned largely with medical economics, the protection of the medical profession against state medicine, compulsory health insurance, and all sorts of schemes being developed to put the physician in the full-time salaried or trades classes. The Association publishes many periodicals, including one periodical in every important specialty. We use more than one hundred tons of paper a week.

Bear in mind that the American Medical Association is a corporation organized "not for profit." Its work is carried on for the good of the profession and the good of the public. It is only because during the last twenty-five or thirty years it has carried on with the highest and noblest ideals that it has been possible to attain this magnificent growth. (Prolonged applause.)

President Murphy: Dr. Fishbein, on behalf of the Medical Society of the State of North Carolina, I wish to thank you for giving us this talk, which is so instructive and will be so helpful to us. We wish to acknowledge our debt to the American Medical Association for doing all this for us.

REPORTS OF COMMITTEES

Dr. McBrayer, Secretary, read the reports of the Committee on Medical Society Foundation, Committee on Memorial for the North Carolina Physicians Who Died in the World War, and Committee on Printing and Supplies, all of which reports were approved.

REPORT OF COMMITTEE ON MEDICAL SOCIETY FOUNDATION

To the House of Delegates:

Your Committee on Medical Society Foundation regrets to report that no funds have come into our hands.

Respectfully submitted,

J. P. Matheson, M.D.
M. L. Stevens, M.D.
J. B. Sidbury, M.D.
J. M. Parrott, M.D.
L. B. McBrayer, M.D.

REPORT OF COMMITTEE ON MEMORIAL FOR THE NORTH CAROLINA PHYSICIANS WHO DIED IN THE WORLD WAR

To the House of Delegates:

Your Committee on "Memorial for the North Carolina Physicians who died in the World War" are pleased to report: (1) That through the courtesy and kindness of Dr. Wilburt C. Davison, and the Medical School and Hospital of Duke University, a memorial tablet has been placed just inside the front door of the medical school and hospital, with the name of each physician who died in the World War placed thereon.

On the opposite side, through the same courtesy, a similar tablet has been placed and thereon are the names of the nurses who made the great sacrifice in the World War.

The thanks of this Society are due and are hereby tendered to Dr. W. C. Davison and Duke University for their magnanimity, courtesy and kindness in this matter.

We trust that every Fellow of this Society who is in attendance on this meeting will avail himself of the privilege of viewing these memorials.

So far as the Committee knows, this completes the work for which it was created, and we therefore request that the Committee be discharged.

Respectfully submitted,

J. P. Munroe, M.D., *Chairman.*
A. J. Crowell, M.D.
L. B. McBrayer, M.D.
J. M. Parrott, M.D.
J. T. Burrus, M.D.
W. C. Davison, M.D.

REPORT OF COMMITTEE ON PRINTING AND SUPPLIES

To the House of Delegates:

Your Committee on Printing is pleased to present the following report:

We have found it wise and economical to let the bid for printing transactions *before* the Meeting of the Society for the following reasons:

1. We have been able to get the programs printed without any cost to the Society by letting the contract for printing of programs with the contract for printing the transactions, otherwise the cost would be about $100.00 for printing the programs.

2. By letting the contract for printing transactions before the meeting, we have been able to lower the cost a little from the former very low bid that we have accepted. This year the printing of programs, 3,000 copies, and the transactions, 1,775 copies, was let for $1,900.00.

3. It is but fair to say that Secretary McBrayer has conducted all the negotiations in such matters and we only looked over the bids and let the contract to the lowest bidder, and he deserves the credit for the economy and efficiency.

Respectfully submitted,

P. P. McCain, M.D.
J. W. Dickie, M.D.

The President next called for the report of the Committee on Legislation, which was read by Dr. Benj. J. Lawrence, Chairman. This report was discussed by Dr. James M. Parrott, who commended

the splendid work done by the Chairman of the Coumittee and by the Secretary-Treasurer, by the other members of the Committee and by the members of the Senate and House Committees on Health. It was further discussed by Dr. R. F. Yarborough and Dr. J. T. Burrus, the lattter explaining the provisions of the new law governing the selection of the members of the State Board of Health and the appointment of the State Health Officer. Dr. Burrus stated that an important accomplishment of the Committee on Legislation was the securing of a separate appropriation of $98,000 for the State Laboratory of Hygiene, which can not be diverted to any other use.

On motion, the report was adopted, and the President expressed to the members of the Committee the gratitude of the Society for their untiring service.

REPORT OF COMMITTEE ON LEGISLATION

To the Members of the House of Delegates of the North Carolina State Medical Society.

Gentlemen:

Your Committee on Legislation and Public Policy wishes to submit the following report, to-wit: During the year that has elapsed since we adjourned some very interesting and some perplexing problems have occupied our attention. During the latter months of 1930 your Committee received many requests from various county societies requesting that we attempt to get some definite Legislation passed by the 1931 assembly. We received these requests and gave them careful consideration. While these requests were coming in certain other matters were occupying our attention. It was evident to some of us that some very dangerous Legislation was likely to be proposed at the next Legislature. Many of you are well acquainted with the famous Brooking's Report and its recommendation.

When this report came off the press it contained some very sweeping recommendations concerning certain departments of State; and two very definite and far-reaching recommendations concerning our profession. And had they been enacted into law they would have effected the citizenship of our State materially. Your Committee, together with a number of outstanding members of our profession, had numerous and extensive conferences before and during the time the Legislature has been in session. We were very fortunate in having two members of this particular Committee in the present general assembly; together with several other physicians. In the House, Doctor Rogers of Macon county was chairman of the Committee on Public Health. The chairman of the Committee on Public Health in the Senate was Doctor J. T. Burrus. These men, together with Doctor T. W. M. Long of Roanoke Rapids, the third member of the Committee on Legislation, plus Doctor I. M. Hardy in the Senate, rendered splendid and untiring service during the trying days of this assembly.

Carrying out the request of various county societies we asked the Attorney General to prepare four (4) bills. No. 1. To Place Doctors Bills on the Preferred List. No. 2. To Reduce the Time Limit for

Suits for Malpractice from Three Years to One Year. No. 3. To Remove the Special $25.00 Tax on Doctors. No. 4. Forbid a Charity Patient to Sue for Malpractice.

Your Committee, together with the Secretary of the State Medical Society and others of our profession, appeared before the Joint Finance Committee and requested them to remove the $25.00 special tax. We were unable to make any headway with them for two reasons. In the first place they argued that our State Treasury needed the revenue and our profession as a whole was able to pay it. In the second place they claimed that if they granted our request they would have to grant other professions similar request; of course, we did not agree with them.

The other bills requested by the various county societies were turned over to Doctor J. T. Burrus, chairman of Committee on Public Health in the Senate. The first of these bills requesting that Doctors' Bills be made a Preferred Claim was introduced and killed in Committee. The Doctors in the House and Senate thought it would be unwise to introduce the other two.

We come now to the most important matter that occupied our attention, namely, the recommendation of the Brooking's Report. The Chairman of your Committee, acting in consultation with a number of our profession from various parts of the State, met in Raleigh and laid plans as best we could to prevent the passing of these two recommendations. Namely, the Abolition of the State Board of Medical Examiners and the Public Health Board. Right here I want to take this opportunity to personally thank the members of this House of Delegates for the splendid way in which the Doctors generally supported your Committee at that critical time. The Secretary of State Medical Society rendered untiring efforts and a valuable service. His efforts and influence, together with that of Doctor James M. Parrott, who represented the State Board of Health, were most helpful and their suggestions plus the service rendered by the rank and file for our profession made it possible for your Committee to get very quickly the report that the State Board of Medical Examiners would not be interferred with. However, rumor continued that the present administration wanted a new Health Act. After various conferences with the Governor it was apparent that he was determined to have his bill introduced, and it appeared to us that it would be unwise for us to refuse to listen to the reasoning of the Governor. Upon this conclusion your Committee on Public Health, including the Secretary of the State Medical Society and Doctor James M. Parrott representing the State Board of Health, met at the Governor's office in Raleigh and went over the new bill in detail. This bill provides that the Secretary of the Board of Health shall be elected by the members of the Board of Health, subject to the approval of the Governor. The term of office to run concurrently with that of the Governor. It further provides that the Board of Health shall have nine members, five of them to be appointed by the Governor and four of them to be elected by the Medical Society of the State of North Carolina. Their terms of office to be four years and overlapping. So

far as fundamental principles are concerned the new bill is almost the same as the old bill. This new bill satisfies the Governor and so far as your Committee could see did not take from the State Medical Society anything which it now has. Under this process of reasoning we felt it was wise to allow this new bill prepared and sponsored by his excellency to go through the Legislature without a serious fight.

During the last Legislature a bill to amend the Industrial Act so as to permit an injured employee to select his own physician was passed.

There was an amendment strengthening the nursing act passed. A Bill was introduced making it a misdemeanor to enter the Hospital and contracting for a certain priced room and leaving without paying for the room. Amendment to Health Act allowing separate budget for State Laboratory of Hygiene.

A bill legalizing an autopsy with the consent of two of the nearest of kin was passed. There were other bills introduced but did not pass and among them was a bill to permit the sale of intoxicating liquors to be sold by druggists on Doctors' prescription.

Your Committee has been so busy and completely occupied with the above matters that they have not made much progress in their study of Expert Testimony.

At the last meeting of the House of Delegates a resolution was passed requesting the Committee to make a study of an appeal of one of its members then pending for contempt. Since this House of Delegates adjourned the Supreme Court of this State handed down a ruling sustaining the Industrial Commission upon imprisoning a physician for contempt. We gave serious consideration to this matter. The chain of circumstance developed so quickly that there was very little we could do. In the first place it was apparent to us that the Industrial Commission was a court and we were at a total loss to know how the counsel in that case should have permitted an appeal to go up upon so flimsy a basis. Your Committee was of the impression that the case was very poorly handled. It was very apparent to us who conferred with those in a position to know that our Supreme Court regretted exceedingly that they were forced to pass on the question. Upon investigation your Committee was led to believe that the underlying trouble was shadowed by some bitterness and personal feeling. Resentment and personal revenge is regrettable under any circumstance. But when it finds its way into a controversy where one side has all the power and that side seeks revenge through its power as a court, it is deplorable beyond expression. As a Committee we regret the occurance and we feel firmly convinced that it ought not to have occurred. It is our firm belief that if these parties had used a cool head, judgment and reason a deplorable situation might have been avoided.

Your Committee feels that the Doctor is entitled to a fee for Expert Testimony, and under the laws of North Carolina it is customary for the presiding Judge to allow such fees. It is true that such an allowance is discretionary with the presiding Judge, but it is so strong a custom it is almost a law. Your Committee feels that a Doctor ought

not to demand a fee once he is under a supena because after the supena has been served the presiding Judge then has so much power if he chooses to use it that he may bring about an embarrassing and unpleasant situation. However, your Committee feels positive that if the members use judgment they may obtain adequate fees though this is not written into law. And of course no Doctor may charge for testimony. But it certainly is his privilege to charge for his opinion. However, it is all important that he should deal with the plaintiff or defendant, or their attorney direct, before he takes the witness stand. True, the attorney may become obstrepous and he may ask the presiding Judge to issue a bench warrant. But he would be a very silly lawyer and a sorry counselor who would force a Doctor on the witness stand against his wishes. From the above it is apparent that the law in North Carolina is against the Doctor demanding his pay, but there is an *unwritten law in the shape of custom* almost strong enough to be a law. This custom set up in the annals of human psychology, shot through with common sense and built on judgment will help grant and almost guarantee to the physician a reasonable compensation in our courts if he proceeds judiciously and uses courtesy and common sense at the proper time and the right place. And it appears to your Committee that the time and place most suited for this agreement for compensation for an opinion is in dealing with the attorney of the defendant or plaintiff as the case may be, before he, the attorney of the plaintiff or defendant knows the physician's opinion; and where he, the physician, can or is willing to lay emphasis.

Respectfully submitted,

B. J. Lawrence, *Chairman.*

REPORT OF COMMITTEE TO CONFER WITH LIKE COMMITTEE FROM THE NORTH CAROLINA DENTAL SOCIETY

Dr. James M. Parrott, Chairman, made the following oral report:

I did not think it necessary to submit a written report, in view of the fact that the report of the Committee is embodied in and forms a part of the program. The Committee invited the North Carolina Dental Society to send two essayists to take part in our program and as many delegates as they desired, and the Secretary-Treasurer made the arrangements.

REPORT OF COMMITTEE TO CONFER WITH LIKE COMMITTEE FROM STATE NURSES' ASSOCIATION ON CURRICULUM TO BE USED IN TRAINING OFFICE NURSES

Dr. O. L. McFadyen, Chairman, made the following oral report:

The Committee has been working with Miss Kelly, of the State Nurses' Association, but has as yet no definite report to make. We would ask that the Committee be continued. Agreed to.

REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

Dr. H. A. Royster, one of the delegates to the American Medical Association, reported as follows:

The report from the delegates to the American Medical Association is very brief. Dr. Stevens, Dr. Crowell, and myself were present at all the sessions. We took part in all the proceedings that we could, both political and scientific. There is nothing to report back to the State Society which would be of any particular local interest. The meeting last year was in the city of Detroit and was largely attended. As the outgoing delegate this year I can report that all of us were in our seats at all the sessions and performed our duties as well as we could. There was no particular legislation or policy that concerned our state organization beyond the fact that we voted as we thought best upon all measures brought up. The delegates who hold over (I think I have one more year to serve) simply wish to say that they erpect to be in Philadelphia at the meeting and join with the Nominating Committee and the other delegate, who is to be elected, in pledging ourselves to serve the interests of the Medical Society of the State of North Carolina as best we can.

REPORT OF DELEGATES TO SOUTH CAROLINA MEDICAL ASSOCIATION

Dr. O. L. McFadyen, one of the delegates to the South Carolina Medical Association, reported that another of the delegates, Dr. Hamilton W. McKay, had attended the South Carolina meeting, having nothing to report except that the meeting was very enjoyable.

REPORTS OF COUNCILORS

First District—Dr. H. D. Walker

Dr. Walker reported orally as follows:

In some respects the First District has taken charge of the county societies. Our district society meets every three months. Some of the county societies do not have meetings, but meet with the district society. The programs are very interesting, the papers are thoroughly discussed, and the meetings are worth while.

Second District—Dr. G. G. Dixon

Dr. Dixon reported orally as follows:

Again I admit that the Second District is the best district in the whole state. We have four or five very active county societies. Some of the counties, with only two or three members, have no local meetings. Our district society meets once a year. This year we lost, immediately following our district society meeting, our beloved friend, Dr. William E. Warren. Otherwise, we are still the best in the state.

THE REPORT OF THE COUNCILOR OF THE THIRD DISTRICT

Dr. J. B. Cranmer, Wilmington

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA 1930-1931

The Third District Medical Society has held two meetings during the year. The first of these meetings was held in Wilmington at the Cape Fear Hotel, on the afternoon and evening of December 4, 1930.

At the afternoon session Dr. John Hamilton, Wilmington, N. C., presented an exhaustive paper on "Measles." Dr. V. H. Davis, Medical Superintendent of The James Walker Memorial Hospital, read a paper on "The Management of Post-operative Ileus." Both of these papers were enthusiastically discussed. After a good dinner had been served, the scientific program of the evening was begun. An excellent paper was given by Dr. Hubert A. Royster of Raleigh, the guest of the meeting, on "The Treatment of Wounds." This subject was most ably treated and interestingly discussed. Dr. J. Buren Sidbury of Wilmington, then read a very fine paper on, "The Uses and Abuses of Viosterol," illustrated with lantern slides. This was freely discussed.

Dr. J. G. Murphy, Wilmington, president of the State Society, honored us with an address, "Some of the Problems of the Medical Profession." Dr. Murphy's paper was in every way apropos and was given thoughtful and respectful consideration and discussion.

We were fortunate to have with us at the evening meeting Mrs. W. B. Murphy, the president of the Woman's Auxiliary of the State Medical Society, who gave a very interesting talk immediately following the dinner. The following physicians from outside the district were present at this meeting besides those from the Third District: Dr. John B. Wright and Dr. V. S. Caviness of Raleigh, Dr. Oscar Lee McFadyen of Fayetteville and Dr. Seevy Highsmith, also of Fayetteville, and Dr. W. B. Murphy of Snow Hill.

The second meeting of the year was held in Wilmington in joint session with a dinner meeting of the New Hanover County Medical Society, at the Y. W. C. A., on April 16, 1931.

An interesting paper was read by Dr. Charles F. Stronsnider of Goldsboro. The subject of this paper was, "Diseases of the Myocardium-Myocarditis Emphasized," and it was most skillfully treated and freely discussed. Dr. J. D. Freeman, Wilmington, read a timely paper, "Rheumatism, Focal Infection, Report of Cases," practically every phase of this subject being brought out in the paper and in the discussion.

Dr. J. F. Robertson, Wilmington, read a paper on "Plastic Operations—Lantern Demonstrations". It was interesting in all its detail.

Many interesting addresses on timely medical subjects have been given by members of the Third District Medical Society, in various churches and schools throughout the district during the past year. County meetings have been regular and well attended.

At this, the close of my term of office as Councilor of the Third District, I am happy to be able to report the District in excellent condition. Consistent progress has been made along all lines and constructive work is being done as individuals and collectively. I bespeak for my successor the same coöperation and support that has been given to me.

John B. Cranmer, M.D.,
Councilor Third District.

REPORT OF WILLIAM H. SMITH, M.D.

Goldsboro

Councilor of the Fourth District

Organized Medicine is still on a sound basis in this District. With one or two exceptions each County has a well organized Society which meets regularly. During the past year several of the County Societies have taken on new activity and none of the Societies has lagged. The District Society meets regularly every three months at different places in the District with an attendance of from 50 to 75. At these meetings excellent papers are reported. There is no friction in the District.

Fifth District—Dr. E. A. Livingston, Councilor

Dr. Livingston made the following oral report:

The Fifth District Society has held two meetings since the last meeting of the State Society, one at Sanatorium and one at Sanford. Peace and harmony seem to prevail in our district, and I think I could not report anything better than that.

REPORT OF COUNCILOR OF SIXTH DISTRICT

Dr. V. M. Hicks, Councilor

In making this, my sixth annual councilor's report, I have nothing of particular interest concerning the various county units. If there be any dissension between members of the medical profession, I am not aware of it. During the past year I have not had an opportunity to visit all of the county units, but the definite reports I have are satisfactory. The District Society's semi-annual meetings have been most satisfactory. I attach herewith a report of each.

I am of the personal opinion after my experience as Councilor that the time has come when organized medicine in North Carolina should further its interest in a business way through organization. I think we feel the need of this in our own District and I believe that it will serve to more closely unify the profession. However, I do not believe that this must be brought about through the State's Medical organization.

I wish to assure you that I consider serving as your Councilor for six years a very great honor and privilege.

REPORT

Seventh District—Dr. T. C. Bost, Councilor

The annual meeting of the Seventh District Medical Society was held in Concord, October 21, 1930. This was a very interesting and instructive meeting. Over a hundred members were present. Dr. J. G. Murphy, President North Carolina Medical Society, was present and made a very instructive talk.

A banquet was given to the Society by the Cabarrus County Medical Society, which was greatly enjoyed and highly appreciated by the members.

Dr. Louis Hammon, Baltimore, Md., was our invited guest and gave a most interesting clinic in the afternoon and also addressed us at our banquet.

Dr. R. M. King, Concord, was elected president, Dr. W. T. Shaver, Albemarle, vice-president, and Dr. C. H. Pugh, Gastonia, secretary. The next meeting will be held in Albemarle, 1931.

I have kept in touch with all of the County Medical Societies in the District and find that they are all organized and are holding regular meetings. Most of the counties have comparatively small membership except Mecklenburg and Gaston counties, but practically all of the doctors in the District belong to the county societies. Owing to the small membership in most of the counties, the Mecklenburg County Society which has a large membership and meets twice a month, is now sending out their programs of each meeting to all of the men in the District, thus affording members of small societies an opportunity to attend more scientific meetings than they otherwise might have.

Eighth District—Dr. R. B. Davis, Councilor

Dr. R. B. Davis, Councilor for the Eighth District, reported orally as follows:

I have nothing to report except that we have had our usual two meetings a year, with very good attendance. We have been trying to have clinics in the morning and have met with a fair measure of success, the clinics having been unusually well attended. In the afternoon we have scientific papers, usually having one by an invited guest, and that draws a large crowd. Last time we had Dr. Stengel, of the University of Pennsylvania.

So far as I know, everybody is very happy in my district with one exception, and that is on account of collections, and the councilor can not do much about that.

REPORT OF COUNCILOR OF NINTH DISTRICT

Dr. M. R. Adams, Councilor

The Ninth District Medical Society is a live, energetic organization and is growing in popular favor, and is one of the best societies in the

State. The annual meetings are looked forward to with interest and are growing in interest and enthusiasm year by year.

The last meeting was held in Salisbury on 25th of September, 1930, and was considered one of the best in the history of the society. A good program was rendered and a number of scientific papers, all of a high order, and progressive, were read and discussed. One of the most enjoyable features of the meeting was a banquet given by the Rowan County Medical Society.

The next meeting will be held in Lexington on Thursday, September 24, 1931.

The Ninth District Society has aided in the general effort on the part of the medical profession of North Carolina to have the $25 annual license tax removed.

As every one knows this tax is not only unjust and unfair, but it is peculiarly irritating to the medical profession because of the fact that our profession does such an enormous amount of charity work that an extra burden of this kind indicates that the State of North Carolina fails to appreciate the enormous service rendered the indigent citizens of the State.

On March 17th a hearing before the Joint Financial Committee was attended by a number of doctors. Strong talks were made by a number of doctors advocating the removal of this tax. The revenue bill has not yet been passed but the opinion is that the $25 tax will still remain. Efforts of the few doctors who attended this meeting represent an enormous amount of work on the part of these individuals. Those who attended this committee meeting were faithful to the trust imposed upon them and the arguments advanced for the removal of this tax were such that no reasonable legislative body could refuse to grant it.

President—Dr. B. W. McKenzie, Salisbury.

Vice-President—Dr. J. L. Sowers, Lexington.

Secretary-Treasurer—Dr. James W. Davis, Statesville.

M. R. Adams,
Councilor, Ninth District.

REPORT OF COUNCILOR OF TENTH DISTRICT

Dr. J. F. Abel, Councilor

A good many County Societies in my district do not meet at all, and others very infrequently. A very few meet regularly, fair to good attendance, and good progressive professional spirit. We have two district meetings a year (spring and fall) which are usually well attended. The district meetings are usually attended by state officers, which is a great stimulus to the professional spirit of the district and encourages attendance. At our recent spring meeting at Tryon there were about one hundred doctors and their wives present. The interest and spirit shown at this meeting was very gratifying proof of the professional well-being of the doctors of the district. All major subjects on hand are to be brought up at each succeeding meeting until final solution.

I learn through book, instrument and supply salesmen that the doctors of the district are buying a great deal more. This naturally infers better diagnosis and better treatment. Hard times has especially affected our district. Most of the lumber plants have closed. A good many of the hardwood factories have closed, others running greatly restricted. The closing of so many of these industries, which have kept so many of the people away from the land, has greatly increased the "paper poke and tin can brigade" and incidently, the indigent practice. In most instances the County Commissioners and other organizations are not only willing for the doctors to take care of this extensive work without remunerations, but insist upon it. I am proud that the profession is heroically standing by its best traditions and taking care of the situation, but an effort shows behind the smile. I believe that the profession could institute a plan whereby the indigent could be carried by the general taxpayer and not the doctor. In most of my district we are studying the cost of medical care from various angles.

J. F. Abel, *Councilor.*

The President called for the report of the Secretary of the Board of Councilors and the report of the Secretary of the State Board of Medical Examiners, but neither was present in the hall.

NEW BUSINESS

Dr. J. Grover Raby, delegate from Edgecombe-Nash, offered the following resolution and moved its adoption:

Resolved that we, the Medical Society of the State of North Carolina, through our Legislative Committee petition the General Assembly of North Carolina to change the law regarding the selection of county boards of health so as to permit the election of the medical members of said boards by the respective county medical societies instead of by the present system.

This resolution was discussed by Dr. G. H. Macon, delegate from Warren, and the motion to adopt was seconded by Dr. C. W. Armstrong, of Rowan County. The motion was carried, and the resolution was adopted.

Dr. J. A. Winstead, delegate from Edgecombe-Nash, offered a resolution in substance as follows and moved its adoption, his motion to adopt being duly seconded:

Resolved, that the House of Delegates of the Medical Society of the State of North Carolina, through its Committee on Legislation, request the General Assembly of North Carolina to pass the bill known as H. B. —, to legalize the sale of whiskey in drug stores on doctors' prescriptions.

Dr. Winstead stated that this bill had been introduced in the General Assembly, at the request of the Nash-Edgecombe County Medical Society and the Fourth District Medical Society, by the representative from Nash, who said its passage is assured if the State Medical Society would adopt some such resolution as that proposed.

Dr. James M. Parrott, delegate from Lenoir, moved that the proposed resolution be referred to the Executive Committee with the request that they consider the matter and work out what they think is the best possible solution, reporting to the next annual session of the State Society, thus giving everybody an opportunity to study the matter and to undertake to arrive at its solution.

Dr. Parrott's motion was discussed by Dr. E. A. Livingston, Councilor for the Fifth District, and was seconded by Dr. H. B. Hiatt, High Point. It was then discussed by Dr. C. L. Swindell, Wilson, by Dr. Northington, delegate from Mecklenburg; by Dr. Garrison, delegate from Gaston, who also seconded Dr. Parrott's motion; and by Dr. Burrus, delegate from Guilford. Dr. Parrott rose to a point of order, stating that since his motion to refer is essentially a motion to postpone, it is not debatable. Dr. Burrus said that Dr. Parrott's motion was a motion to supplement and the discussion is on the first motion, and Dr. Parrott then asked the Chair for a ruling on his point of order. Dr. Winstead said that since the second motion (Dr. Parrott's) was offered with the statement that it would defer action for two years, it was evidently offered in order to defeat the purpose of the first motion and was out of order. Dr. Long, delegate from Halifax, suggested that action be postponed and that the whole matter be brought up before the general session of the Society. (Calls for the question.) Dr. Northington said the point had been made that a motion to refer or postpone is not debatable, but that only two motions are not debatable—a motion to table and a motion to adjourn.

The President ruled that Dr. Parrott's motion to refer is a substitute motion, and to be voted upon first. A *viva voce* vote was taken, which was indecisive, and a roll call vote was called for. The President stated that only delegates are entitled to vote. The roll-call vote was taken, resulting in a total of 59 votes recorded, 27 votes for the motion to refer and 32 against it. (During the voting, the President called the president-elect, Dr. Stevens, to the chair and asked him to preside.) The Chair announced the result of the vote and declared the motion to refer lost.

Dr. Parrott asked to be heard and, upon being recognized, spoke strongly against the adoption of the resolution and appealed to the House to defeat it. Dr. Murphy, delegate from Greene, also spoke against the passage of the resolution. Dr. Burrus, delegate from Guilford, asked for a ruling from the Chair as to whether discussion of the motion to refer was discussion on the original motion. The Chair ruled that it was not and that discussion on the original motion is now in order. Dr. Burrus then spoke in defense of the right of the medical profession to prescribe what it considers necessary to prescribe. Dr. Winstead urged the adoption of the resolution. Dr. McCain, delegate from Hoke, spoke on the moral aspect of the matter, saying that as physicians the delegates should consider very carefully the moral influence of the passage of such a resolution by the House of Delegates of the State Medical Society and urging its defeat.

Dr. Benj. J. Lawrence, Chairman of the Legislative Committee, requested the privilege of the floor, and on motion duly seconded and

carried, was granted permission to speak. (President Murphy resumed the chair.) Dr. Lawrence said that he had stated that personally he would favor the passage of the bill mentioned in the proposed resolution, but if he were a delegate he would be forced to oppose it, the question having been interjected into this meeting without any notice; that the delegates are here to represent the profession throughout the state and that many are not represented here who would be had they known that this matter would come up, and that they should be given a chance to vote on it.

Dr. Northington, delegate from Mecklenburg, said he wanted it recorded that he resented the implication in Dr. Lawrence's remarks.

Dr. H. A. Royster asked to be heard as an ex-president and the chair ruled that past presidents were members of the House of Delegates. He stated that the pharmacists of the state are opposed to the passage of the bill now pending in the General Assembly, as also are the women, the ministers, the president of the State Board of Examiners in Pharmacy, the head of the School of Pharmacy at the State University, etc., and appealed to the House of Delegates to kill the motion.

Dr. R. S. McGeachy, Greenville, asked for permission to speak, which was granted, and said that he wanted it recorded that he is not in favor of the resolution.

The matter was further discussed by Dr. Yarborough, delegate from Franklin, and Dr. Moore, delegate from Buncombe, who then moved that the discussion close. This motion was seconded and carried.

A roll-call vote was called for by Dr. Parrott and was taken. Several members explained their votes as follows: Dr. Evans, delegate from Bertie, said that this is too serious a question for this subdivision of the State Medical Society to pass upon. Dr. Royal, delegate from Carteret, said that in his experience of twenty-two years in the practice of medicine he had never prescribed whiskey.

At the end of the roll call, Dr. Northington called attention to the fact that a delegate was present from Beaufort County, Dr. Britt, and that Beaufort had not been called. Someone asked for Dr. Britt's credentials. The Secretary-Treasurer stated that, according to the strict interpretation of the Constitution and By-Laws, no one has a right to vote except the delegates duly elected by the county societies whose credentials have been sent in to the Secretary; but that the usual custom had been, in the absence of all the delegates and alternates from a county society, to allow any member of that county society present to represent it. The President ruled that the usual custom would be followed, and Dr. Britt's vote was recorded. He voted *no*.

The record showed a total of 65 votes recorded, 30 for the adoption of the resolution, and 35 against it. The President thereupon declared the motion for adoption lost.

ELECTION OF NOMINATING COMMITTEE

The following members of the Nominating Committee were elected by the delegates from the county societies in each district:

First District, C. B. Williams.
Second District, G. G. Dixon.
Third District, J. F. Robertson.
Fourth District, T. W. M. Long.
Fifth District, K. G. Averitt.
Sixth District, C. C. Carpenter.
Seventh District, L. A. Crowell.
Eighth District, J. K. Pepper.
Ninth District, J. W. Vernon.
Tenth District, Julian A. Moore.

On motion, duly seconded and carried, the House of Delegates adjourned at 12:53 a. m., to meet again on Wednesday afternoon at 4 o'clock, in room 222.

The second session of the House of Delegates met in Room 222, Washington Duke Hotel, at 4 p. m., Wednesday, April 22nd.

Called to order by the President, Dr. J. G. Murphy.

The Finance Committee made its report which was unanimously adopted. (See report following Financial Statement Secretary-Treasurer.)

Dr. R. B. Davis, Secretary of the Council, made report as follows:

We have endeavored to discharge all the duties incumbent upon us. We have attended the meetings of the Executive Committee of which we are a part. We have held sessions during the meeting of this Society. No appeals have come before us and there has been no other business of importance transacted by the Council.

Respectfully submitted,

R. B. Davis, *Secretary.*

The Nominating Committee made the following report which was adopted:

President-elect—Dr. John B. Wright.....Raleigh
First Vice-President—Dr. C. W. Banner.....Greensboro
Second Vice-President—Dr. W. W. Sawyer.....Elizabeth City
Secretary-Treasurer—Dr. L. B. McBrayer.....Southern Pines

COUNCILORS 1931-34

First District—Dr. C. B. Williams.....Elizabeth City
Second District—Dr. K. B. Pace.....Greenville
Third District—Dr. J. T. Haggard.....Wilmington
Fourth District—Dr. C. F. Strosnider.....Goldsboro
Fifth District—Dr. A. B. Holmes.....Fairmont
Sixth District—Dr. W. M. Coppridge.....Durham
Seventh District—Dr. Addison G. Brenizer.....Charlotte

Eighth District—Dr. Thos. C. Redfern.....Winston-Salem
Ninth District—Dr. M. R. Adams.....Statesville
Tenth District—Dr. Joseph B. Greene.....Asheville

Delegates to American Medical Association, 1932-1933 Inclusive

Dr. J. K. Pepper.....Winston-Salem
Dr. T. W. M. Long.....Roanoke Rapids

Delegates to Medical Society of Virginia

Dr. E. S. Boice.....Rocky Mount
Dr. R. L. Kendrick.....Elizabeth City
Dr. W. G. Suiter.....Weldon
Dr. W. Bernard Kinlaw.....Rocky Mount
Dr. John Cotton Tayloe.....Washington
Dr. W. M. Johnson.....Winston-Salem
Dr. J. W. McGehee.....Reidsville
Dr. Fred R. Taylor.....High Point

Delegates to the Medical Society of South Carolina

Dr. T. C. Bost.....Charlotte
Dr. L. M. Griffith.....Asheville
Dr. Lucius N. Glenn.....Gastonia
Dr. J. W. McKay.....Charlotte
Dr. John W. MacConnell.....Davidson
Dr. John P. Kennedy.....Charlotte

Delegates to North Carolina Dental Society

(To be appointed by the President)

Committee on Legislation

Dr. Benj. J. Lawrence.....Raleigh
Dr. J. T. Burrus.....High Point
Dr. T. W. M. Long.....Roanoke Rapids

Committee on Printing

Dr. L. B. McBrayer.....Southern Pines
Dr. P. P. McCain.....Sanatorium
Dr. J. W. Dickie.....Southern Pines

PLACE OF MEETING: WINSTON-SALEM

Time: Third Tuesday in April, 1932

April 18th, 19th, 20th

Chairman Committee on Arrangements:

Dr. R. L. Carlton, Winston-Salem

Signed:
C. B. Williams, M.D.
Grady Dixon, M.D.
J. F. Robertson, M.D.
T. W. M. Long, M.D.
K. G. Averitt, M.D.
C. C. Carpenter, M.D.
L. A. Crowell, M.D.
J. K. Pepper, M.D.
J. W. Vernon, M.D.
Julian Moore, M.D.

The President announced the appointment of the Advisory Committee to the Women's Auxiliary as follows:

Dr. A. B. Holmes, Fairmont.
Dr. J. M. Northington, Charlotte.
Dr. J. W. Tankersley, Greensboro.
Dr. Donnell B. Cobb, Goldsboro.
Dr. V. M. Hicks, Raleigh.

No further business appearing, on motion the House of Delegates adjourned.

PROGRAM

GENERAL SESSIONS, 1931

First General Session—Tuesday, April 21, 9:30 a.m. Lecture Room "C."

Mr. James C. Marriott, Reporter.

Call to Order: Dr. Lyle S. Booker, Chairman Committee on Arrangements, Durham.

Invocation: Rev. S. S. Bost.

The President's Address: Dr. J. G. Murphy, Wilmington.

Report of Committee on Winners of the Moore County Medical Society Medal: Dr. W. C. Mudgett, Chairman, Southern Pines; Dr. J. M. Parrott, Kinston; Dr. John Q. Myers, Charlotte.

Presentation of Moore County Medical Society Medal: 1930 Session, The Clinical Consideration of an Anemia of Pregnancy and the Puerperium: Dr. C. T. Smith and Dr. W. Bernard Kinlaw, Rocky Mount.

Announcements.

Address: Dr. John B. Deaver, Philadelphia, Pa. (Invited Guest): Residual Conditions Following Operation on the Biliary Tract.

Address: Excision or Partial Gastrectomy in the Treatment of Ulcers. Results following operation. Dr. Addison G. Brenizer, Charlotte. From Section on Surgery.

Address: Incidence of Syphilis in North Carolina, Dr. Clarence Shore, State Laboratory of Hygiene, Raleigh. From Section on Public Health and Education.

Address: Surgical Significance of Derangement of Intestinal Rotation and Distribution (Lantern Slides): Dr. Thomas M. Green, Wilmington. From Section on Pediatrics.

Address: Dr. Pascal Brooke Bland, Philadelphia, Pa.

Address: Pyorrhea; Few Suggestions for Its Early Recognition by the Physician: Wallace Gibbs, D.D.S., Charlotte. From North Carolina Dental Society.

Second General Session—Tuesday, April 21, 8:00 p.m. Lecture Room "C."

Mr. James C. Marriott, Reporter.

Report of Committee on Necrology: Dr. C. M. Van Poole, Chairman; Dr. C. A. Julian; Dr. McT. G. Anders.

General Memorial Address: Dr. A. C. McCall, Asheville.

Dr. Cyrus Thompson: Dr. J. M. Parrott, Kinston; Dr. L. B. McBrayer, Southern Pines; Dr. T. E. Anderson, Statesville.

Dr. Charles O'Hagan Laughinghouse: Dr. J. T. Burrus, High Point; Dr. W. S. Rankin, Charlotte; Dr. Hubert A. Royster, Raleigh.

Motion Pictures with Sound: 1. "Experimental Gastroenterostomy." 2. "Vaginal Hysterectomy for Uterine Prolapse." (Compliments of Petrolagar Laboratories, Inc.)

Third General Session—Wednesday, April 22, 9:00 a.m. Lecture Room "C."

Mr. James C. Marriott, Reporter.

Address: "Indications for Surgical Treatment of Pulmonary Tuberculosis," Dr. W. P. Herbert, Asheville. From Section on Surgery.

Address: "The Importance of Rest in Tuberculosis," Dr. P. P. McCain, Sanatorium. From Section on Practice of Medicine.

Address: "Endoscopic Aspects of Lung Pathology (Lantern Slide Demonstration) with Some Studies in Pneumonography," Dr. V. K. Hart, Charlotte. From Section on Eye, Ear, Nose and Throat.

Address: Dr. Morris Fishbein, Editor Journal of The American Medical Association, Editor Hygeia, Chicago, Ill.

Address: "Early Diagnosis of Pellagra," Dr. Vernon S. Caviness, Raleigh.

Address: "Ectopic Pregnancy Complicating Normal Pregnancy," Dr. Oren Moore, Charlotte. From Section on Gynecology and Obstetrics.

Address: H. O. Lineberger, D.D.S., Raleigh. From North Carolina Dental Society. "Relationship Between Medicine and Dentistry."

11:20 a.m.—Election four members of the State Board of Health, two for two years, two for four years. Election member State Board of Examiners for Nurses.

12:00 m.—Conjoint Session of the Medical Society of the State of North Carolina with the State Board of Health. Dr. A. J. Crowell, President, State Board of Health, Charlotte, Presiding.

Fourth General Session—Wednesday, April 22, 8:00 p.m. Lecture Room "A." Miss Mary Robinson, Reporter.

Report of Board of Medical Examiners.

Report from the House of Delegates.

Installation of 1931-1932 officers.

Presentation President's Jewel, Dr. J. G. Murphy, Wilmington, retiring President.

Unfinished Business.

Any papers carried over.

Adjourn *sine die.*

SECTION MEETINGS

SECTION ON PRACTICE OF MEDICINE

TUESDAY, APRIL 21, 2:00 P. M.

PATHOLOGIC CONFERENCE ROOM, DUKE UNIVERSITY MEDICAL SCHOOL

Dr. Wm. B. Dewar, Raleigh, Chairman
Miss Mary Robinson, Reporter

1. Arthritis: Dr. T. Preston White, Charlotte.

Discussion, Dr. W. R. Stanford, Durham; Dr. Verne Caviness, Raleigh.

2. The Various Forms of Colitis, Their Etiology, Diagnosis and Treatment: Dr. Thomas R. Brown, Baltimore, Md. (Invited Guest.)

3. The Significance and Treatment of Cardiac Irregularities: (Lantern Slides) Dr. W. B. Kinlaw, Rocky Mount.

Discussion, Dr. Christopher Johnston, Durham; Dr. R. D. McMillan, Red Springs.

4. The Treatment of Recurrent Erysipelas: (Lantern Slides) Dr. Harold Amoss, Durham.

Discussion, Dr. Joseph A. Elliott, Charlotte; Dr. E. R. Tyler, Durham.

5. Indigestion: Dr. Hubert Haywood, Raleigh.

Discussion, Dr. W. O. Nisbet, Charlotte; Dr. John Berry, Greensboro.

6. An Unusual Case of Leukemia: Dr. F. R. Taylor, High Point.

Discussion, Dr. Robert Bellamy, Wilmington; Dr. T. C. Redfern, Winston-Salem.

7. Undulent Fever—A Medical, Economic and Public Health Problem: Dr. C. F. Strosnider, Goldsboro.

Discussion, Dr. William Allan, Charlotte; Dr. Paul Whitaker, Kinston.

8. The Importance of Rest in Tuberculosis: Dr. P. P. McCain, Sanatorium, before Third General Session, Wednesday, April 22.

SECTION ON SURGERY

TUESDAY, APRIL 21, 2:00 P. M.

AMPHITHEATRE, DUKE UNIVERSITY MEDICAL SCHOOL

Dr. Deryl Hart, Durham, Chairman
Mr. James C. Marriott, Reporter

1. Avertin as a Basic Anesthetic: Dr. Foy Roberson, Durham.

Discussion, Dr. Donnell Cobb, Goldsboro.

2. Intestinal Obstruction: Dr. W. H. Sprunt, Jr., Winston-Salem.

Discussion, Dr. R. O. Lyday, Greensboro.

3. Shall We Operate on the Acutely Inflamed Gall Bladder: Dr. Hubert A. Royster, Raleigh.

Discussion, Dr. Foy Roberson, Durham.

4. Chronic Cholecystitis Without Stones; Study of One Hundred Consecutive Cases: Dr. J. D. Highsmith, Fayetteville.

Discussion, Dr. W. H. Sprunt, Jr., Winston-Salem.

5. Some Phases of Gall Bladder Disease: Dr. D. T. Tayloe, Jr., Washington; Dr. DeWitt Kluttz, Washington.

Discussion, Dr. Donnell Cobb, Goldsboro.

6. Progress Made in Prostatic Surgery: Dr. A. J. Crowell, Charlotte; Dr. T. M. Davis, Charlotte.

Discussion, Dr. W. M. Scruggs, Charlotte.

7. Traumatic Lesions of the Abdomen; Report of a Case of Transfixion by Bridge Timber Recovery: Dr. T. C. Bost, Charlotte.

Discussion, Dr. J. W. Gibbon, Charlotte.

8. Post-operative Neurasthenia: Dr. R. B. Davis, Greensboro.

Discussion, Dr. William Allen, Charlotte; Dr. Hubert A. Royster, Raleigh.

9. The Treatment of Chronic Sigmoid-Abdominal Sinus: Dr. Roy B. McKnight, Charlotte.

Discussion, Dr. D. T. Tayloe, Jr., Washington.

10. Surgery of the Birth Canal: Dr. Benj. J. Lawrence, Raleigh.

Discussion, Dr. L. A. Crowell, Lincolnton.

11. Excision or Partial Gastrectomy in the Treatment of Ulcers; Results Following Operation: Dr. Addison G. Brenizer, Charlotte, before First General Session, Tuesday April 21.

12. Indications for Surgical Treatment of Pulmonary Tuberculosis: Dr. W. P. Herbert, Asheville, before Third General Session, Wednesday, April 22.

SECTION ON PEDIATRICS

TUESDAY, APRIL 21, 2:00 P. M.

MEDICAL LECTURE ROOM NO. 2031, DUKE UNIVERSITY MEDICAL SCHOOL

Dr. Charles R. Bugg, Raleigh, Chairman
Master Reporting Company, Reporter

1. Chairman's Address: Acute Laryngeal Obstruction in Children: Dr. Charles R. Bugg, Raleigh.

2. Experiences with Blood Transfusion in Infants and Children: Dr. Arthur H. London, Jr., Durham.

Discussion, Dr. Marion Y. Keith, Greensboro; Dr. Thomas Watson, Greenville.

3. Acute Infection in Infancy: Dr. Donald E. Robinson, Burlington.

Discussion, Dr. H. H. Harrison, Asheville; Dr. S. S. Saunders, High Point.

4. New Dosage of Old Drugs: Dr. J. LaBruce Ward, Asheville.

Discussion, Dr. J. R. Ashe, Charlotte; Dr. John Cotton Tayloe, Washington.

5. Brief Pediatric Reminiscences and Probable Trends: Dr. E. A. Hines, Seneca, S. C. (Invited Guest).

6. Acrodynia; with Case Report: Dr. C. A. Street, Winston-Salem.

Discussion, Dr. B. U. Brooks, Durham; Dr. Tyree Wyatt, Raleigh.

7. Presentation of Cases—Pediatric Staff—Duke University Hospital.

8. Surgical Significance of Derangement of Intestinal Rotation and Distribution (Lantern Slides): Dr. Thomas M. Green, Wilmington, before First General Session, Tuesday, April 21.

SECTION ON GYNECOLOGY AND OBSTETRICS

WEDNESDAY, APRIL 22, 2:00 P. M.

LECTURE ROOM "A" WASHINGTON DUKE HOTEL

Dr. R. T. Ferguson, Charlotte, Chairman
Mr. James C. Marriott, Reporter

1. The Use of Rabbits in the Ascheim Zondenk Test for Pregnancy: Dr. George Johnson, Wilmington.

2. Cardio-Vascular Renal Disease During and After Pregnancy: Dr. J. S. Brewer, Roseboro.

3. Axis Traction in the Use of Forceps (Presentation of a New Obstetrical Forceps): Dr. W. Z. Bradford, Charlotte.

4. Cesarean Section—The Safety of the Low Cervical over the Classical Operation: Dr. I. M. Proctor, Raleigh.

5. Ectopic Pregnancy Complicating Normal Pregnancy: Dr. Oren Moore, Charlotte, before Third General Session, Wednesday, April 22.

SECTION ON EYE, EAR, NOSE AND THROAT

WEDNESDAY, APRIL 22, 2:00 P. M.

LECTURE ROOM "C" WASHINGTON DUKE HOTEL

Dr. J. M. Lilly, Fayetteville, Chairman
Dr. V. K. Hart, Charlotte, Secretary
Miss Mary Robinson, Reporter

1. Chairman's Address: Inter-Relations, Dr. J. M. Lilly, Fayetteville.

2. Practical Value of Perimetry in Intracranial Conditions; Case Reports (tumors, vascular disease, toxemia, syphilis and trauma): Dr. Frank C. Smith, Charlotte.

3. Intracranial Pressure, Complicating Medical and Surgical Problems, with Especial Reference to Its Treatment and Relief: Dr. Temple Fay, Professor of Neuro-Surgery, Temple University, Philadelphia, Pa.

4. Report of a Case of Cerebro-Spinal Rhinorrhea: Dr. Shahane R. Taylor, Greensboro.

5. Some Intra-Cranial Infections of Aural and Nasal Origin, with Report of Cases: Dr. Vance P. Peery, Kinston.

6. Postnasal Discharge: Dr. W. W. Eagle, Durham.

7. Cocaine Poisoning—Its Prevention and Treatment: Dr. B. W. Fassett, Durham.

8. Endoscopic Aspects of Lung Pathology. Lantern Slide Demonstration with Some Studies in Pneumonography: Dr. V. K. Hart, Charlotte, before Third General Session, Wednesday, April 22.

SECTION ON PUBLIC HEALTH AND EDUCATION

WEDNESDAY, APRIL 22, 2:00 P. M.

LECTURE ROOM "B" WASHINGTON DUKE HOTEL

Dr. John D. Kerr, Clinton, Chairman
Master Reporting Company, Reporter

1. Congenital Syphilis: Dr. Walter Clarke, American Social Hygiene Association, New York, N. Y.

2. Eye Lesions of Acquired and Congenital Syphilis: Dr. H. L. Sloan, Charlotte.

3. The Interpretation of Public Health and Social Welfare: Mrs. W. T. Bost, Commissioner of Public Welfare, Raleigh.

4. The Bacillus of Contagious Abortion and Undulant Fever: Dr. C. D. Grinnelle, (Dairy Research) State College, Raleigh.

5. Public Health in Children Ages One to Six: Dr. J. Roy Hege, Winston-Salem.

6. Measles: Dr. J. H. Hamilton, Wilmington.

7. Public Health in Relation to Cancer: Dr. H. H. Bass, Durham.

8. Incidence of Syphilis in North Carolina: Dr. Clarence Shore, State Laboratory of Hygiene, Raleigh, before First General Session, Tuesday, April 21.

CONJOINT SESSION OF STATE BOARD OF HEALTH AND THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

WEDNESDAY, APRIL 22, 12:00 M.

LECTURE ROOM "C"

Miss Mary Robinson, Reporter

Members of the North Carolina State Board of Health

A. J. Crowell, M.D., President, Charlotte.
J. M. Parrott, M.D., Kinston.
Thomas E. Anderson, M.D., Statesville.
E. J. Tucker, D.D.S., Roxboro.
D. A. Stanton, M.D., High Point.
James P. Stowe, Ph.G., Charlotte.
John B. Wright, M.D., Raleigh.
L. E. McDaniel, M.D., Jackson.
Charles C. Orr, M.D., Asheville.

Executive Staff

H. A. Taylor, M.D., Acting Secretary and Acting State Health Officer.
Ronald B. Wilson, Assistant to the Secretary.
C. A. Shore, M.D., Director State Laboratory of Hygiene.
G. M. Cooper, M.D., Director Bureau of Health Education.
H. E. Miller, C.E., Chief of Bureau of Engineering and Inspection.
Ernest A. Branch, D.D.S., Director Oral Hygiene.
D. A. Dees, M.D., Field Assistant in County Health Work.

Order of Business

Report of Work Accomplished and Recommendations.
Discussions.
New Business.
Adjournment.

WOMEN'S AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Officers

President—Mrs. W. B. Murphy, Snow Hill.
President-Elect—Mrs. R. S. McGeachy, Greenville.
First Vice-President—Mrs. G. H. Macon, Warrenton.
Second Vice-President—Mrs. W. J. Meadows, Greensboro.
Third Vice-President—Mrs. J. W. Dickie, Southern Pines.
Treasurer—Mrs. A. B. Holmes, Fairmont.
Corresponding Secretary—Mrs. J. M. Parrott, Kinston.
Recording Secretary—Mrs. P. P. McCain, Sanatorium.

Councilors

First District—
Second District—Mrs. M. A. McCuiston, Kinston.
Third District—Mrs. L. C. Beard, Atkinson.
Fourth District—Mrs. Malcolm Bizzell, Goldsboro.
Fifth District—Mrs. Roscoe McMillan, Red Springs.
Sixth District—Mrs. Russell Perry, Durham.
Seventh District—Mrs. I. W. Faison, Charlotte.
Eighth District—Mrs. A. D. Owensby, Greensboro.
Ninth District—Mrs. J. L. Sowers, Lexington.
Tenth District—Mrs. Allen T. Hipps, Asheville.

TUESDAY, APRIL 21

1:00 p.m.—Luncheon—Executive Board.
2:00 p.m.—Annual Meeting (Lecture Room "C").

PROGRAM

Mrs. W. B. Murphy, *President*, Presiding.
Invocation—Rev. D. H. Scanlon, Pastor First Presbyterian Church, Durham.
Address of Welcome—Mrs. Foy Robeson, Durham.
Response to Welcome—Mrs. Roscoe McMillan, Red Springs.
Minutes—Mrs. P. P. McCain, Sanatorium.
Roll Call—Mrs. P. P. McCain, Sanatorium.
Address of President—Mrs. W. B. Murphy, Snow Hill.
Report of Officers.
Report of Councilors.
Group of Songs—Miss Margaret Whittington of New York and Snow Hill (Pupil of Dine Howell):
Pastorale—Veracine.
The Second Minuet—Besly.
A fors e lue—Verdi, from "La Traniata".
Annie Laurie—Liza Lehman.
Report of Delegates to Auxiliary American Medical Association and Southern Medical Association.
Greetings—President Medical Society of the State of North Carolina, Dr. J. G Murphy, Wilmington.
Address—Dr. Morris Fishbein, Editor Journal of the American Medical Association, Editor Hygeia, Chicago, Ill.
Group of Songs—Miss Margaret Whittington.
The Maids of Cadiz—Delibes.
An Old Song—Buchanan.
The Winds in the South—Scott.
Address—"Women and the Doctors," Dr. Hubert Royster, Raleigh.
Election of Officers.
Installation of President.
Awarding of Prizes.
Adjournment.
4:00 p.m.—Tea at Duke University.
5:00 p.m.—Drive.

WEDNESDAY, APRIL 22

11:00 a.m.—Bridge Luncheon—Hope Valley Club.
9:00 p.m.—Dance.

Committee on Arrangements

Mrs. Foy Robeson, President Durham County Auxiliary.
Mrs. William Watkins.
Mrs. Forbes.
Mrs. Hanson Pruss.
Mrs. Waldo Boone.
Mrs. Banks Anderson.
Mrs. Albert Powell.

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

TWENTY-FIRST ANNUAL SESSION

MONDAY, APRIL 20, 1931

Papers Limited to Twenty Minutes—Discussion to Five Minutes

President—Dr. D. E. Ford, New Bern.
Vice-President—Dr. J. H. Epperson, Durham.
Secretary—Dr. F. M. Register, Goldsboro.
Miss Mary Robinson, Reporter.

PROGRAM

9:30 A. M.—LECTURE ROOM "A"

Invocation—Rev. David Scanlon, Pastor First Presbyterian Church, Durham.
Report of Secretary, Dr. F. M. Register, Goldsboro.
Unfinished Business.
New Business.
Address by President, Dr. D. E. Ford, New Bern.
Life and Character of Dr. Charles O'Hagan Laughinghouse: Dr. Grady Dixon, Ayden.
Life and Character of Dr. Cyrus Thompson: Dr. J. M. Northington, Charlotte.
The Value of the Layman in the Public Health Nursing Program: Miss Columbia Munds, R. N., Wilmington.
Three Ations of Public Health: Dr. R. S. McGeachy, Greenville.
Inter-Relation of Mouth and Health: Dr. Ernest Branch, Raleigh.
1:00 p.m.—Barbecue Dinner given to Health Officers and Nurses—Mr. George Watts Hill, Quail Roost Farm.

2:30 P. M.—LECTURE ROOM "A"

"Whence-Whither"—Dr. L. B. McBrayer, Southern Pines.
Infectious Abortion in Cattle: Dr. William Moore, Raleigh.

8:00 P. M.—LECTURE ROOM "A"

Address—Dr. Morris Fishbein, Editor Journal of the American Medical Association, Editor Hygeia, Chicago, Ill.

Election of Officers.

Adjournment.

LUNCHEON MEETINGS

MONDAY, APRIL 20, 1931

1:00 p.m.—Barbecue Dinner given to Health Officers and Nurses. Mr. George Watts Hill, Quail Roost Farm.

TUESDAY, APRIL 21, 1931

1:00 p.m.—Women's Auxiliary Executive Board.

1:00 p.m.—The Society is to be the guest of Duke University at the Duke University Union.

1:00 p.m.—The Alumni of the University of Pennsylvania will give a luncheon with Dr. John B. Deaver as guest of honor at Washington Duke Hotel.

1:00 p.m—North Carolina Chapter of The Jefferson Medical College Alumni Association at Washington Duke Hotel. Dr. Oliver L. Sharpe, President, Greensboro.

1:00 p.m.—Alumni Medical School of Wake Forest College, Dr. H. M. Vann, President, Wake Forest.

WEDNESDAY, APRIL 22, 1931

1:00 p.m.—Univesrity of North Carolina Medical School Alumni. Dr. Frank C. Smith, Chairman, Charlotte.

GENERAL SESSIONS

FIRST GENERAL SESSION—WASHINGTON DUKE HOTEL

APRIL 21, 1931—9:30 A. M.

The Chairman of the Committee of Arrangements, Dr. Lyle S. Booker, called the meeting to order at 9:30 A. M.

CHAIRMAN BOOKER: I will ask that we all stand and be led in prayer by the Reverend S. S. Bost, Rector of St. Phillips Episcopal Church.

INVOCATION

REVEREND S. S. BOST: Oh, God, our Heavenly Father, for as much as without Thee we are not able to please Thee, mercifully grant that Thy Holy Spirit may in all things direct, govern and rule our hearts; and grant that we may both perceive and know what things we ought to do; and grant also, O Lord, that we may have grace and power faithfully to perform and fulfill the same.

Direct this Convention in all its deliberations with Thy most gracious favor; and further them with Thy continued help, that in all their works, begun, continued and ended in Thee, they may glorify Thy Holy Name. And grant that the labors of this Convention may redound to the betterment of humanity, and to the glory of God. We ask it in the Name of Christ, our Savior and Redeemer. Amen!

DR. BOOKER: Members of the Society, I have pleasure in presenting our President, Dr. J. G. Murphy, of Wilmington, North Carolina.

ADDRESS OF THE PRESIDENT

J. G. MURPHY, B.S., M.D., F.A.C.S., Wilmington

In loyalty to my best impulses I desire first of all to express to this organization my fervent gratitude for its generosity in selecting me to stand on the bridge and pilot the medical ship through the uncertain waters of the past year. We have had many squalls, some gales, some threatened storms, and withal, some smooth and easy sailing. Many have stood by, when the clouds were seen gathering in the distance. They counseled to sail straight ahead, that our ship had strength for storms. To those who have stood by and helped and encouraged, I wish to express my appreciation. To an inexperienced mariner they gave assurance and confidence which has meant everything. Cheered on by the loyalty of these, the business trip was transformed into a pleasure cruise. To read the log of all the side trips and port calls would divulge some rare experiences. However, some of the most difficult undertakings, which at the time seemed real problems, now can be recalled, since they are a matter of history, as pleasures rather than matters of duty. The legislature has convened.

Whether it will ever adjourn we know not! It has changed almost everything except the twenty-five dollar doctor's privilege tax. After the payment of which there is no restriction put on them for doing one-third of their work for nothing. In fact it is rather expected of them. Through this turbulent session we have been constantly threatened by mines, air raids, and land attacks. At times, from propaganda abroad, it appeared that we might be wiped off the face of the earth! So rampant was some of this hot air it seemed that we would not be able to leave the proverbial prosaic greasy spot. However, our ship is still here intact, with no scars, broken beams, disabled engines, or even the paint rubbed off—sailing on under the same flag.

From an extraneous source came trouble and imprisoned one of our number, but from the kind ministration of friends and the beneficent aid from the telephone and radio, after the sentence our member emerged more of a hero than otherwise, our general condition better for his sacrifice.

In all things we have stood together, and from all of these experiences let me say that, though we may appear loosely-jointed, there is no more compact organization than ours extant.

The grim Reaper has wielded a cruel scythe during the year, and many of our finest and best, most loyal, useful, and lovable have been cut down. We stand with bared and bowed heads to do them reverence. Two of our past Presidents, as genial characters as I have ever known, have passed. As we carry on in our everyday affairs there is an aching void in our hearts. We treasure the assurance, however, that as they lived they fought a good fight, and kept the faith, and have gone to receive their reward.

During the year it has not been my privilege to visit but five of the ten districts in the state. However, I was represented in the others by one, Doctor L. B. McBrayer, our most efficient Secretary-Treasurer for the last nine years, who was much more competent to give advice and counsel and to stir up inspiration. It has been a pleasure to work with Doctor McBrayer. He has coöperated in all matters coming before us, and though he has held all the offices in the Society and must have often known that he knew better than I did about questions under consideration, yet in deference to my office he treated me as a superior when in reality I was not. He is a tireless worker and gives all the time and more to this office than the office could demand. I state emphatically, after a year of this association with Doctor McBrayer, that he is better informed on the work of the North Carolina Medical Society than any other of its members.

Yesterday was a history-making day with the medical profession in the State of North Carolina, for we dedicated the Duke University Medical School fully equipped in every detail, with its allied hospitals. This equipment is the product of the varied experiences of the other medical schools of the country, and as means were unlimited, the plant we dedicated is as complete as human study and plans could make it. It is a superb institution. As this University stands at the threshold of a life career, what can be more interesting than to think of the history it is to make through the years to come, as it trains our youth

in the art of healing and ministering to those in sickness and suffering and distress.

It gives us happy thoughts to be aware of the fact that the group who contemplate taking the long courses necessary to reach the end of medical education in the present time, can find the most modern and complete plant located within our own state, and in this good city of Durham, and a faculty laboring in their different departments with this splendid equipment by which as good medical training can be received right here at our door as is to be found anywhere in the country.

Doctor Davison has literally spent years in canvassing the entire field of eligibles to select the very best men from the country at large to head and conduct each separate department. He has succeeded wonderfully well and what we are pleased to see is a faculty working together as a unit, capable of doing the very best work possible.

The members of the North Carolina Medical Society who were born in our state before the end of that time known as the Period of Reconstruction, and a later generation as well, born and reared in North Carolina, know from association and observation, if not from actual experience, what it is to be poor. When we attempt to visualize the total endowment of this institution, we simply have to use our imagination. We can not conceive of it in the realm of reality. By wonderful forethought and generosity this endowment has been placed back of this school to supply its every need and make it in all years to come a benediction.

I pause to remind you that America is the medical center of the world today. No further back than the beginning of my professional life this was not the case. Then we went to Europe for the completed and cultural training, but today the world comes to America to study medicine. Four years ago when the Medical Society met in Durham and Doctor Davison was asked to speak to us and give plans for the medical school, he mentioned the essential factors for success—"the buildings, the staff, the students, the type of teaching, the service to the community, and last but not least, the coöperation of the members of the medical profession in the state." I stand here representing the medical profession in our state and speaking for its members, even to the most remote counties, declaring to you that our hearts overflow with gratitude for this wonderful benefaction. I also speak for the entire profession when I tell you of our pride in this University. We stand ready and eager to coöperate with you in making this the ideal medical center of America. Should this perfect coöperation ever fail, then the success of your University will likewise fail. I have faith in the profession in our state that they will do their part.

I have, during the year, put the question to several of our past Presidents: What is our greatest need? What is most worth while bringing to the attention of this body? And it is a remarkable fact that everyone has given in substance the same answer. The greatest need among the men of our profession is development from within—character.

Would these serious-minded and conscientious men be possessed of this conviction if there was not a general anxiety that in the vortex of this age there is an existing danger, a pervading temptation, to which an increasing number are yielding. As Browning has said:

> "Whence comes temptation, but for man to meet
> And master, and make crouch beneath his feet?"

Intellectually, we have advanced. Professional training has reached a state undreamed of a generation ago. We are using in daily routine discoveries and inventions by which more accurate diagnoses are made, quicker and more comfortable recoveries are brought about. The average length of life is prolonged, and happiness in the world is promoted. A fertile imagination may be able to picture in the years to come a state of things as compared with the present that would make conditions of our life today pale into insignificance, but we have no assurance of the future. We can not know that there will be any improvement. We can even surmise that conditions may be worse than now. We live only in the present.

> "The Present, the Present is all thou hast
> For thy sure possessing;
> Like the patriarch's angel hold it fast
> Till it gives its blessing."

As we pass along this journey of life, what can we be leaving as impressions to the oncoming generation that will help them in solving their problems and enable them to see there is something in life besides prosaic drudgery. That there is beauty and sweetness and happiness and poetry. One may develop physically till he possess a perfect body, rounded out in every part, with a mind, that according to educational standards, is flawless. Yet, this perfect body and perfect mind may be a personality utterly worthless. All coming in contact with him, and carrying a mental picture of his value, will readily tell you he is a complete failure in the world. That it would have been better had he never been born.

Now, in clear contrast, this perfect body and perfect mind may be so evaluated by all acquaintances that each one hastens to convey to you his precious estimate of this combination as the highest type of man. One so useful, so loved, and so valued that the world will be poorer when he is gone. What is the vital difference? The latter has lived with a consciousness of his immortality.

My appeal is that we bring to our patients and to their anxious families our best medical knowledge, the truest manhood, the warm friendship which is the outward evidence of a life whose fires burn steadily on the altar of unselfishness and love for others. Let us hold up the high standards which are our inheritance, and may not one of us be found practicing in his life any habit, or that which tends to become a habit, that will degrade the inward life or lower one whit the dignity of our profession, or our influence as a body. Let us as

earnest men face this fact, already reiterated, that the body and the mind, however developed and refined by training, is as chaff, if the immortal spirit is left wandering in darkness.

The tides of evil are halted and turned back by the firm stand and the stern outcry of the men of ideals, of bedrock principles, of unwavering faith. Are we such men? Is this our stand? Is this the voice of our outcry to our own and following generations? Nay, let it not be left a question, let us affirm our stand for the best in all things, as a society and as individuals, to the last man.

Dr. McBrayer (Secretary): The Report of the Committee on Awards of the Moore County Medical Society Medals, of which Dr. Mudgett is Chairman.

Dr. Mudgett was unable to get to the meeting; the other two members of the Committee are here. Dr. Parrott is at the meeting of the State Board of Health, and Dr. Myers is not to be had; so I will read the Report, if I may.

REPORT

The Committee on the Award of Moore County Medical Society medals, selected the paper on the subject of: "The Clinical Consideration of Anaemia of Pregnancy and of Puerperium," by Dr. C. T. Smith and Dr. W. Bernard Kinlaw, of Rocky Mount, as the best presented last year.

Will Dr. Kinlaw come forward?

(Dr. Kinlaw advances—Applause.)

The President, Dr. J. G. Murphy: Dr. Kinlaw, this is a reward for work done in the medical profession which tends to the advancement of the profession and the upholding of the ideals which I have attempted to speak of as our greatest need and ambition. It gives me a great deal of pleasure to present to you, Dr. Kinlaw, and through you to Dr. Smith, these medals as a reward. (Applause.)

Dr. Kinlaw: Mr. President, I wish to thank the State Medical Society for this consideration. I am sorry Dr. Smith could not be here, for he is the one who should really walk up and receive the medal for both of us. I certainly thank you very much. Dr. Smith was detained on account of illness, and it was impossible for him to get here.

The President: The Secretary has some announcements to make.

Dr. McBrayer: Dr. J. K. Pepper, President of the Radiological Society, wishes to announce that there will be a meeting of that Society in Room "A", across the hall, tonight; and everyone interested in X-ray or radium is requested to be present. At any rate, all who joined at the recent organization meeting are expected to be present.

One other announcement: The Fellows of the American College of Physicians will have a luncheon meeting up on the platform in the main dining-room today at one o'clock. There will also be a Luncheon Meeting in the hotel here of the Jefferson Alumni, and another of the

Alumni of the University of Pennsylvania. Distinguished guests will be present at these meetings.

Is Dr. Kenneth M. Lynch, of South Carolina, in the room? (No response.) Is Dr. E. A. Hines, of South Carolina, here? (Dr. Hines comes forward.) I want to present Dr. E. A. Hines as a Delegate from the South Carolina Medical Association. He has been for many years and is a member of the State Board of Health. He was President of the Conference of State Secretaries and is Secretary of the South Carolina Medical Society, and Editor of its Journal. He is held in very high esteem by everyone who knows him and I am anxious that everybody here should know him. We are glad to have you with us.

Dr. Hines: Mr. President, I do not have a speech with me this morning, but I do want to say that I am a North Carolinian when I am over here.

Dr. McBrayer: When you first started, too, were you not?

Dr. Hines continues: There is some doubt about it occasionally though, and I am reminded of a story that was told by Wilfred Lewis, New York Correspondent of the London Times. He said on one occasion in England that there was a gentleman who got on the platform of a train there and he observed a clerical-looking gentleman with clerical gears on and he was so overcome with the presence and the dignity of the occasion, that he said: "Is it possible that I am in the presence of the Archbishop of Canterbury"? This dignified gentleman looked at him around his eyeglasses, or whatever it is they do in England, and said: "What the Hell's business is it of yours as to whether or not I am Archbishop of Canterbury," and so this friend of Lewis' said that he thought about it for years afterwards, and said, "I don't know now whether that was the Archbishop of Canterbury or not." So I am not so sure all the time whether I am a North Carolinian or a South Carolinian. I married in South Carolina, I have been living there for 53 years, but I often come across the line especially to see my good friend, Dr. McBrayer here, and I want to tell you in closing that wherever the North Carolina Medical Society is known, that Dr. L. B. McBrayer is known, and it is a source of great pride to me when I travel with him and when he rises on various platforms in this country, silence prevails and they listen intently at every word that he says because they know that he represents one of the best and most progressive states in the United States. I am sorry that our President is not here today to make this speech for you. Thank you.

President: Dr. Patterson, will you come forward? Members of the North Carolina Medical Society, it gives me a great pleasure to be able to present to you the President of the State Medical Society of Pennsylvania, a state that is noted for its medical knowledge and its ability in medical training, we are glad to have Dr. Ross Patterson, President of the Society, with us.

Dr. Patterson: Mr. President, Mr. Secretary, Members of the Medical Society of the State of North Carolina, it is indeed a very

great pleasure to receive your cordial welcome to meet and to greet you and to convey to you the cordial greetings and wishes of the Medical Society of the State of Pennsylvania. In listening to your President's address, it became apparent to me that you in North Carolina have your medical problems, as we have our medical problems in the State of Pennsylvania, and indeed as we have our medical problems in the nation. I have just this one point in the very brief moment which you so kindly accorded me to endeavor to express and it is this, that if medical problems are to be met and to be solved and solved well, it will be through the influence and the interest of organized medicine. The great need of the medical profession of today, as I see it, is the need of wise medical leadership, of men like your own officers, who will study these problems and work out their solution and who are men of integrity, of such integrity and personality as to gain the support and the following of the profession at large. One of the great defects of the medical profession is its disinclination to follow leaders; we are intensely individualistic; we are all of us generals and none of us privates. That is one of the great difficulties in accomplishing some of the objects of organized medicine. I thank you very much, Mr. President, for your cordial greetings and you, Mr. Secretary, and members of the State Society, and again the cordial greetings of the Society of the State of Pennsylvania.

ANNOUNCEMENTS BY THE SECRETARY

All members of the Society are cordially invited to the luncheon today at the Duke Hospital Medical School at 1:00 P. M., immediately after the adjournment of this meeting. The next General Session of the Society will be held in this room tonight at eight o'clock. The sections on Surgery, Medicine and Pediatrics will be held this afternoon at the Duke Hospital Medical School, all other sessions today and tomorrow will be held in this hotel. Tickets for the luncheon are distributed at the Registration Desk to all members and guests. The Jefferson Alumni Association and the University of Pennsylvania Alumni Association will have a luncheon today at one o'clock in this hotel, also a luncheon at 1:00 P. M. by the North Carolina Fellows of the American College of Physicians in the main dining-room of this hotel.

We have a delegation of some 25 from the North Carolina Dental Society; I would like to ask those delegates to stand up. They don't seem to have gotten in yet.

The President: Fellow Members of the Society and Guests, there is one reward given the President of the State Medical Society, and that is the privilege of inviting some one from a distance or some one of his choice to come and be present at the meeting, and during my term of office, I have exercised that prerogative and have invited a guest who is nationally and internationally known. I am going to ask Dr. R. L. Gibbon if he will present the invited guest.

Dr. Gibbon: I feel very much honored in being asked to present one who is so well known to you and who is loved and admired by

every member of the profession in North Carolina. His unique personality and his contributions to medical science have made his name famous in both this country and abroad. I take the greatest pleasure in presenting to you, Dr. John B. Deaver, of Philadelphia.

RESIDUAL CONDITIONS FOLLOWING OPERATION ON THE BILIARY TRACT

By John B. Deaver, M.D.

The choice of my subject has been prompted by a remark frequently made to me, especially by physicians, that some of their patients are none the better for having been operated upon. This may be true in some instances, but most often it is neither the whole truth nor nothing but the truth. In short, it is only partly true, because neither the doctor nor the patient, but only the operating surgeon knows the extent of pathology present at operation, and it is only he who can say how much worse off these patients might have been without operation. I realize it is idle to speculate on what might have been and that the better philosophy is to accept, or at least to deal with, what is. The fact is that the majority of patients are relieved by operation on the biliary tract, and although those that are not are in the minority, it seems pertinent to inquire into some of the causes of residual conditions after such operations.

The first consideration is to determine whether these more or less remote events are such as pertain to abdominal section in general, such as adhesions, or whether they are related to the special surgical procedure and the special pathology in a given case of disease of the bile passages.

We all know that postoperative complaints are often attributed to adhesions, and we also know that adhesions as a rule cause no symptoms unless they interfere with organic function. The diagnosis of adhesions is a very convenient one, but not always tenable. Neurosis must enter into consideration for a great deal of postoperative morbidity. At the same time obstructive adhesions are responsible for certain residual complaints after operation on the biliary tract, but in addition we must also look for other causes, such as overlooked stones or stones that have re-formed; incomplete diagnosis, that is, failure to recognize and to treat co-existing conditions, as visceroptosis, peptic ulcer, pylorospasm, appendicitis, re-infection and finally, concomitant conditions that are the direct result of delayed surgery, as cholangitis, hepatitis, pancreatitis, and splenitis.

In the experience of the Lankenau Clinic in a recent series of 2,700 operations for disease of the biliary tract, 143, or 5.3 per cent were secondary operations (parenthetically be it said that not all the primary operations were done by us). In a small percentage of cases symptoms developed immediately after operation, while in others they

were delayed for several weeks or months, and a third group, after one or more years of well-being, developed what may be termed residual symptoms.

Some of the early recurrences are no doubt due to a readjustment process. Rost and other physiologists have demonstrated both in the human subject and by animal experiment, that after cholecystectomy there usually is a compensatory dilatation of the common duct which takes care of the balancing of bile pressure formerly provided by the gall bladder. It is only natural that in some patients this readjustment process, with its increased bile pressure, just like every healing process, should be associated with pain, more marked in some individuals than in others. In some instances, on the other hand, the pain may be due to insufficient dilatation of the common duct, to spasm of the sphincter of Oddi, or to stricture of the papilla of Vater, any of which may cause bile stasis. This compensatory dilatation is described by Rost somewhat as follows: A few weeks after cholecystectomy the sphincter of Oddi again becomes continent, and the common duct closes. Thus the bile, in the absence of its former outlet into the gall bladder, collects in the common duct and perhaps also in the hepatic duct and the consequent dilatation of the ducts accounts for the colicky pain. It is only when the bile finally finds a free outlet into the duodenum that the attacks of pain subside. The fact that it takes several weeks before compensatory dilatation is completed, explains the delayed appearance of the postoperative pain so discouraging to the patient and the doctor alike. In this connection it has been pointed out that these colicky pains are more apt to occur after removal of a gall bladder whose function has not been entirely abolished than after removal of a functionless gall badder where the compensatory dilatation of the common duct has already taken place. Treplen, who makes this observation, has had some success in relieving the pain by abdominal massage.

Adhesions as related to surgery of the biliary tract, though not always the cause of, are a common finding in secondary operations. They may form about the hepatic and the common duct, the liver, duodenum, stomach or the hepatic flexure of the colon. They develop as the result of trauma, congestion, infection, stasis, and failure to peritonealize raw surfaces. In extreme cases they are so dense and so *eingemauert,* to use an apt German expression, that it is a truly gigantic task to separate them in order to recognize the anatomic landmarks. Oftentimes when the stomach is involved, a gastro-enterostomy has to be made in order to prevent future obstruction. In a few instances spasticity of the musculature of the biliary tract and of the duodenum is associated with a neurasthenic condition, a combination that may be difficult to correct by any measures, surgical or medical. A circumscribed duodenitis or perhaps a duodenal ulcer, consequent upon lymph borne infection from the gall bladder. is occasionally met with.

During the more or less prolonged disturbed function of the gall bladder, a stone or stones may at first be floated out with the bile, but later on as the gall bladder contracts they may lodge in one of the

bile ducts, or as the ducts dilate they are apt to lodge in the recesses of the duct so that they cannot always be detected and removed at operation. The resulting cholangitis, not infrequently the cause of stricture of the common duct, is also an important factor in post-operative complaints. The resistance of cholangitis to any form of treatment other than surgery is too well known to require discussion. Suffice it to say that one way of avoiding cholangitis is early attention to disease of the liver and the gall bladder. As to recurrence of stones, it is of course not always easy to determine whether these are stones that were overlooked at operation, or whether they are newly formed stones. The fact that often they are present in large numbers, sometimes several hundreds, would lead to the conclusion that they have re-formed. On the other hand, every surgeon knows how difficult it is at times to clear the two primary branches of the hepatic duct and how often in the attempt to clear the hepatic duct one or more stones may be displaced beyond the reach of the surgeon. That these stones may produce postoperative obstruction of the common duct is altogether likely. Indeed, in some instances, several re-operations may be required in order to establish a complete cure, as for example in cholangitis where the excreted bile is muddy and sandy and there is distension of the common duct, the hepatic duct and the primary branches of the hepatic duct. Two or more operations, T-tube drainage, irrigation, etc., may be necessary to clear the ducts.

If it is possible for gall stones to be overlooked during cholecystectomy or for them to re-form after the radical operation, it is certainly not surprising that the operation of cholecystostomy should sometimes also be followed by similar residual conditions. As a matter of fact, in our experience the vast majority of recurrent symptoms take place after cholecystostomy and fully thirty per cent of the residual complaints are due to gall stones. These recurrences may take place as late as eight or ten years after the gall bladder has been drained. Here also it is difficult to state definitely whether the stone formation is new or whether the stones were present and overlooked at the original operation. The presumption is more in favor of the former than of the latter, although experience indicates both possibilities. I have in mind several patients who had remained well for years after cholecystostomy and then developed typical attacks of gall stone colic. At the second operation in one case several stones were found in the gall bladder and a few in the common duct. It is of course possible, but scarcely probable. that these were overlooked stones that had remained quiescent for all those years. In another instance a patient who had remained well for two years after cholecystostomy for gall stones presented himself for recurrent symptoms. At operation the gall bladder was found to be actually packed with hundreds of small stones, which likewise could scarcely have been missed at the first operation. In another re-operated case a stone was found in the cystic duct. This probably was present at the primary operation, and if so, would have been removed if the gall bladder had been taken out. The fact that residual pathology after cholecystostomy is more common than after cholecystectomy naturally speaks in favor of doing

the radical operation whenever possible. While conceding that there are occasions when the better policy is to satisfy one's self with simply draining the gall bladder, I cannot subscribe to the argument or the belief that restoration of function of the gall bladder occurs after simple drainage. This of course depends upon the absence of or the amount of injury to the gall bladder by the infection. We know from bacteriological investigations that in about 86 per cent of cases the cystic gland contains streptococci and a smaller per cent is present in the submucosal space and the outer walls of the gall bladder. A gall bladder once infected never regains its normal resilience and a gall bladder retained when it should be removed is reserved not for future function, but for future trouble. Furthermore cholecystitis, which is a cause of residual symptoms, occurs in about 7 per cent of cholecystostomies.

Myocardial weakness, both as a pre- and a post-operative residual condition of cholecystitis, is particularly noted in obese patients, more often in the female. On account of myocardial weakness, operation is held off for a time and in some instances refused. Long since, did the late Dr. Babcock of Chicago stress the relationship between chronic disease of the gall bladder and the myocardium, and argued for operation in many of these cases. The bacteriological findings, to which I have already referred, support this view.

In some instances disease of the biliary tract gives rise to a low grade catarrhal gastritis with low acidity or anacidity, and since the removal of the gall bladder does not always influence the gastric secretion and since hypo-acidity favors bacterial growth, it is possible for the biliary tract to become re-infected and cause post-operative symptoms.

A certain degree of hepatitis and choledochitis is known to be associated with practically every case of cholecystitis. In spite of the regenerative power of the liver, man cannot live without his liver, so for the present at least, it is one of the organs that is safe from the surgeon's knife. Hepatitis can be relieved surgically only by removal of the gall bladder and drainage of the common duct for a more or less indefinite time. While cholecystectomy may correct enough pathology to effect a regeneration of the cellular and hematogenous forces of the body to overcome the smoldering process in the liver, it does not always immediately remove all the effects of long-standing pathology, so that a residual hepatitis and a residual cholangitis may be expected in certain cases. The question of whether the primary source of infection lies in the liver or in the gall bladder requires further investigation. Clinically, we can point to apparently as many cases of one as of the other. The role of the appendix, however, as the actual guilty party, must ever be borne in mind. Autopsy findings in a recent case of multiple minute miliary hepatitic abscesses once more emphasizes the part played by the appendix as the focus from which the upper abdomen oftentimes becomes infected. This, as we all know, is readily explained by the relationship of the vascular channels of the appendix with the tributaries of the portal vein. Briefly stated, the case is as follows:

A patient, male, aged 28 years, was admitted to the Lankenau Clinic with a history of attacks of dull abdominal pain after meals and sometimes irrespective of meals. No nausea or vomiting. Past medical and family history negative. The patient was on a limited diet. Physical examination was negative. Roentgen ray studies showed hyperperistalsis and spasticity of the duodenal cap—no crater. The findings indicated reflex irritation but were insufficient to warrant a diagnosis of ulcer. There was slight ptosis of the colon with cecal and colonic stasis. Cholecystogram showed sluggish biliary function. Fractional test meal showed hyperacidity total up to 85 and free up to 55. No retention. While under observation, the patient was able to take only milk, crackers, bread and cream. Any other food caused generalized abdominal pain and tenderness, the latter being present only during the attacks of pain. The blood count remained normal. The diagnosis wavered between acute appendicitis, a typical peptic ulcer and chronic cholecystitis. At operation, 38 days after admission, an acutely inflamed appendix containing a fecolith was removed. The liver showed gray streakings. The gall bladder appeared diseased and was removed. Because of marked pylorospasm, the anterior half of the pyloric sphincter was also removed. The pathologist reported acute appendicitis; gall bladder, minor lesion. The patient rallied from operation, but on the following day temperature shot up to 102, patient un-coöperative and slightly irrational. Complained of a good deal of abdominal pain. Died on the 6th day after operation. Autopsy showed multiple abscesses in two large infarcts of liver. Liver friable throughout and streaked with gray. Cultures of the appendix, cystic gland, gall bladder walls and of the hepatic abscesses were all positive for streptococci.

That prolonged hepatitis may lead to biliary cirrhosis and the latter in turn to splenic enlargement, merely offers further evidence that it is not surgery, but delayed surgery that has failed to effect a complete cure.

The same applies to chronic pancreatitis as one of the residual conditions under discussion. In the series above referred to, in about ten per cent of cases, recurrence of symptoms was due to symptoms of chronic pancreatitis. We find from observations in our Follow-up Clinic that those patients who at operation present a certain degree of hardening of the pancreas do not regain their health as promptly as those without this added feature. The pain persists, the stools show increased neutral fats, fatty acids and undigested protein fibers; diastase is found in the urine and lipase in the blood serum. Sometimes there may be a cicatricial contraction of the papilla of Vater. While most of those in the first named group may recover completely in time, some may require secondary drainage of the pancreas by means of choledochostomy, to relieve the stasis in the pancreatic duct and stasis of pancreatic secretion, both of which are responsible for the development of pancreatitis. The second group can scarcely be relieved without operation consisting of dilatation of the papilla of Vater, T-tube drainage of the common duct, or if the gall bladder and a patulous cystic duct have not been removed, a cholecysto-duodenostomy or cho-

lecysto-gastrostomy may be done, although personally I prefer external T-tube drainage of the common duct.

May I hope this brief resume of why operation does not always immediately establish a cure is at the same time a brief for surgery, and a plea for early attention to disease of the biliary tract as one means of acquitting surgery of the suspicion of inadequacy.

A few words as to incomplete diagnosis as a cause of residual conditions after surgery on the biliary tract. This eventuality to my mind emphasizes the importance of careful clinical study, especially the history and the physical examination, and correlating these with the clinical routine analyses of the urine, the blood, blood chemistry and x-ray findings, but not relying exclusively on the laboratory diagnosis. In other words, letting the senses sense the conditions and the test-tube confirm them. (Prolonged applause.)

Dr. McBrayer (Secretary): Gentlemen, the Alumni of the University of Pennsylvania gives a luncheon today at one o'clock, in honor of Dr. John B. Deaver. I know you will all want to go.

We are indebted to Dr. P. A. Yoder for working this thing up, and for notifying all the graduates of the University of Pennsylvania, and I know you will all have a fine time.

The Alumni of the Jefferson Medical College feel themselves just about on a par with the University of Pennsylvania, because they have as their guest Dr. Ross Patterson, who spoke to you a while ago; and while the most important thing is that he has never been with you before as the President of The Medical Society of the State of Pennsylvania—of course, you have all heard of Pennsylvania—and he is President of that Medical Society now. (Applause.)

The President: The next address on our program is: Excision or Partial Gastrectomy in the Treatment of Ulcers: And the Results Following Operation. This subject will be presented to you by Dr. Addison G. Brenizer, of Charlotte. (Applause.)

INDICATIONS FOR EXCISION AND GASTRECTOMY AND RESULTS FOLLOWING OPERATION

Dr. Addison G. Brenizer, Charlotte

Case I. In July, 1917, before going into military service in September, we did a palliative gastro-enterostomy, merely to relieve obstruction, in a man 52 years old, who had been vomiting persistently, had lost over fifty pounds in weight, was pale and almost entirely exhausted. There was a mass, not only felt but seen in the epigastrium and right hypo-chondrium. He vomited food and barium of the day before and showed by X-ray studies a very large stomach with a little barium passing into the duodenum and an irregular outline of the antrum, a crater, the apex of which was along the lesser curvature at the pyloric canal. At operation there was a mass the size of a lemon in the antrum up to the pyloric canal, with the cap of the crater toward the lesser curvature. The exploration was quick-

ly terminated with a gastro-enterostomy. A diagnosis of cancer with metastatic lymph glands was made. The patient never vomited again, greatly improved and gained weight during three weeks in the hospital. My goodbye to him when he left the hospital was a final one and with more feeling than he ever suspected. Two years later after the war, this same man, in the bloom of health and a gain of sixty pounds, returned to see me, to thank me for curing him. There was no mass to be felt; X-ray studies showed a rapidly emptying stomach of normal size and the barium passed out both by the pyloric canal and gastro-enterostomy opening. The man is still living and well, and has paid little or no regard to his diet since three or four months following his operation. In the light of now-a-days I should have felt a confidence in his outcome, if I had considered the location of the ulcer and had made a frozen section of one of the lymph glands along the lesser curvature. Almost every surgeon I have talked to, has recited a similar surprising experience.

Case II. In March 19, 1924, a man, age 33, was rushed to the hospital on account of having been struck with violent pain in his right upper abdomen and right side. He doubled up with severe pain and rigidity of his abdomen, which he in no way relaxed until he was under full anesthesia. This was Wednesday afternoon and he had just been dismissed from the hospital Monday after the third Sippy treatment of eight weeks each and had eaten nothing but eggs, milk and very light cereals. There was considerable fluid in the right hypochondrium and a hole nearly the size of a ten-cent piece, and an indurated area the size of a dollar on the anterior surface of stomach, extending to the lesser curvature. There were enlarged glands along the lesser curvature. For two reasons the indurated area was excised with a cautery, first to gain more supple tissue for enfolding, and second, to get rid of the wide spread lesion. A considerable section was thus removed and when wound was closed the antrum was very much narrowed and the pyloric canal encroached upon. With compress in the hypo-chondrium and change of gowns, gloves and instruments, a gastro-enterostomy was done. The wound healed per priman and the patient made an uneventful recovery, taking a full diet in two months. He has not had the slightest complaint in over six years. Fig. 1 and 2, Case II., show the stomach during his last Sippy treatment with the ragged area located in the antrum, near the pyloric canal and a small crater continuous with the lesser curvature and four years later a narrow antrum with serrated outline along the lesser curvature. Practically all of the barium is passing through the gastro-enterostomy opening.

After these resections of either gastric or duodenal ulcers with gastro-enterostomy or pyloroplasty it is almost impossible to draw any conclusions from X-ray studies beyond the proper emptying of the stomach and possibly the absence of a definite crater. Compare Fig. 3 of a resection of duodenal ulcer and pyloroplasty.

Case III. May 21, 1924, a woman, age 67, who for years suffered such violent pain and nausea on taking food, occasionally relieved by washing out the stomach, but as frequently requiring morphine, begged

for relief by operation. She knew and was repeatedly warned that her general condition, rheumatism and leaking heart, already twice decompensated, made her operation a risk. She preferred the risk, and death even, to life as it was. X-ray studies showed a collar-button crater from the posterior surface of stomach in the upper part of the corpus and near the lesser curvature. This crater was a fixed point and did not shift with the movements of the stomach. The lesion did not show at all in a first series of X-rays and was only brought out on placing the patient in the oblique position. Fig. 4.

The operation was done with local anesthesia and gas. The ulcer was found on the posterior surface of the upper corpus, intimately attached to the pancreas. The fixation to the pancreas and the drag down upon it, as well as the inflammatory reaction of the ulcer, evidently caused the severe pain. There were enlarged glands along the lesser curvature. Access was easily made through the gastro-hepatic omentum, the ulcer crater separated from the pancreas, the pancreas gently cauterized and closed with catgut sutures. The ulcer resected and stomach closed. At this stage of the operation and without warning save for the risky heart condition, the patient's heart gave way and she died shortly after the abdominal incision was closed. Pathological section of the ulcer and gland showed no malignancy.

Case IV. A man 62 years old, March 25, 1922, who had had dyspepsia and colitis for 20 years. X-ray pictures taken several years previously showed gastroptosis and slow motility; more recent examination of gastric contents showed absence of hydrochloric acid. There was more and more gastric distress and all foods disagreed with him. X-ray studies revealed a small stomach with feeble contraction waves, marked reduction of cavity, ragged outline of antrum along the greater curvature. The man was losing rapidly in weight and color. At an exploratory operation, the walls of the whole antrum and corpus were thickened and hard; the picture of the so-called leather bottle stomach. There were no glands. After the exploratory operation he was seen in consultation with Drs. Kelly and Burnam who advised radium and X-ray and Dr. Finney who suggested the possibility of a total or subtotal gastrectomy. The patient chose the easier and useless route of treatment with X-ray and radium. He rapidly reached the point where he could not be fed by mouth on account of extreme gastric distress and aversion to food. For the purpose of feeding a duodenostomy was done and in this way he was fed until he died. Conditions of living could not have been worse for him if a gastrectomy had succeeded and if he had died, he would have been relieved of months of suffering and a useless life.

Cases V and VI. Two cases, one of a man 64 years old, January 8, 1921, the other a woman 69 years old January 30, 1924. Both complained of gastric distress, both had lost weight, the man, 42 pounds; the woman had just had a voluminous gastric hemorrhage. X-ray studies in the man failed to disclose a definite lesion. At operation on both cases there was an indurated area the size of a dollar in the anterior wall of the antrum, with a large shallow crater. In the woman the induration extended up to and embraced the lesser curva-

ture; in the man, neither curvature was involved, the lesion was nearer the greater curvature. In both cases there were a few glands along the lesser curvature near the pyloric canal. A gastrectomy with resection of the whole antrum, about half the stomach, was done in both cases. Pathological section in the one case, the man with the ulcer frankly and freely on anterior surface of the antrum showed malignancy; in the other case, the woman with the ulcer nearer and embracing the lesser curvature showed no malignancy. Both cases are living and well. The woman after six years, the man after nine years. Since two months following their operations both have eaten practically a full diet, have regained weight and color and have no gastric distress. X-ray studies following gastrectomy show the stomachs while somewhat reduced in size, still capable of accommodating themselves to the intake of a full diet and a corresponding restoration of the patients to their normal weight and color. The resected stomach exhibits a motility just as vigorous as that following about 30 per cent of gastro-enterostomies, emptying time less. Compare Figs. 5 and 6.

Out of 9 cases where gastrectomy was done, 7 cases are now living and well. Two cases are dead after fourteen and eighteen months respectively from metastasis. Even the two cases dying of metastasis and cachexia were able to take their meals with comfort and died without any abdominal distress.

Cole reports 26 cases of ulcer of the corpus gestrica where 11 were treated with gastric resection, 10 with excision and 5 with gastro-enterostomy without excision. Of the 11 treated with gastric resection 6 lived to leave the hospital and 5 died while in the hospital. Of the 10 treated with excision, 2 were mucosal ulcers and 1, as proved by microscopic examination, was already a healed ulcer. Of the remaining 7, 2 died, 2 were worse, 1 was improved and 2 were said to be improved. All of the 5 cases treated with gastro-enterostomy lived but as we can compare each of these with a similar case treated medically without gastro-enterostomy, the question arises: did the ulcer heal because of the gastro-enterostomy or in spite of it?

Cole's conclusions are as follows:

1. We must study each regional type of ulcer separately and therefore this communication has been confined to presentation of corporic ulcers.

2. Mucosal ulcers are so superficial and transitory that they should not be included in a consideration of whether or not to operate.

3. If an ulcer has distorted a stomach almost beyond recognition such a distortion becomes a complication and that case is definitely surgical. No case of this character is included in the 26 cases presented herein.

4. Ulcers that occur nearer the greater curvature than the lesser should be considered ulcerations in carcinomatous areas and not benign ulcers.

5. Any ulcer that increases in size, after the initial avulsion of the crater, should be considered malignant, or at least not a simple or benign type of ulcer. This increase in size must be determined by comparing roentgenograms made at the end of one week in bed, two

weeks in bed, and if necessary at the end of a third week in bed, care being taken to observe that the patient is in the same posture during each examination.

6. The mortality of gastric resection for ulcers of the corpus is so extremely high that this procedure is not justified as a method of treatment for corporic ulcers.

7. Excision of a small ulcer high up on the corpus may be successful. Excision either with cautery or knife, of an ulcer near the sulcus angularis is contraindicated as it usually results in a gastric deformity requiring subsequent surgical procedure.

8. Gastroenterostomy for corporic ulcers is merely an excuse to do something. These ulcers heal in spite of the gastroenterostomy rather than because of it.

9. From an analysis of these facts, it is evident that surgical procedure is definitely contraindicated in all cases of corporic ulcer and that it should be resorted to only in such cases as are known to have gradually increased in size during a three weeks' period of rest in bed under roentgenologic control, or which in that same period of time have definitely failed to diminish in size. In this latter group of cases, surgical procedure should only be resorted to, however, in the event that the symptoms are so severe that the patient demands operation. In these cases, it must be borne in mind that the same constitutional conditions which prevent the healing of ulcers, such as arterial sclerosis, make the patient an unfavorable surgical risk.

I am persuaded that Cole's observations and conclusions from the point of view of a roentgenologist are accurate and tangible and that they can be applied practically in the determination of not only whether to operate or not, but what operation to do. It seems to be a fact that almost all ulcers may be classified as corporic, prepyloric and postpyloric ulcers and that they occur in the ulcer-bearing area along the lesser curvature. Ulcers in these locations are inflammatory and not malignant. Ulcers elsewhere in the stomach, particularly near the greater curvature, may be malignant and must be considered as such.

When such ulcers extend to enormous size, as they sometimes do, so as to produce lameness and obstruction of the stomach, as in the case first cited, Case I, there is no other alternative except to give relief of obstruction by gastro-enterostomy; and in an ulcer of such size the difficulty and uncertainty of determining its original location and whether or not it be malignant, may be impossible. The diagnosis may be aided by a frozen section of one of the glands. Doubt as to the diagnosis may still remain and force the question of gastrectomy. It is generally accepted from experience in the hands of most operators and proven by post-operative X-ray studies that "V shaped" resection and "Sleeve" resection too frequently leave a deformed stomach with mechanical function interfered with. This is particularly true, when resections are done along the lesser curvature near the sulcus angularis. In these cases, a gastrectomy is preferable. When ulcers are located outside the ulcer zone, that is not in the antrum along the lesser curvature, excision is indicated, because of the possibilities of serious trouble

inherent in the ulcer, namely perforation; case II, Mr. S., hemorrhage; case VI, Mrs. S., deformity with perigastric adhesions; case IV, Mrs. Sholtz, narrowing of lumen by pressure of mass and cicatricial contraction, and most important malignant degeneration, case V, Mr. R.

In the above-cited cases, the large obstructing ulcer at the pylorus along the lesser curvature healed under gastro-enterostomy; the perforated ulcer on the anterior surface of stomach under resection and gastro-enterostomy, that on the posterior wall, adherent to the pancreas was resected, the two cases, one of the woman with hemorrhage and the other of the man, both ulcers located in the antrum on the anterior wall, gastrectomy was done. The choice between resection and gastrectomy is determined largely by the amount of the wall to be resected and the resulting deformity and interference with motor function. Where such a large area is to be resected, gastrectomy is preferable; also where the ulcer is located outside "the ulcer bearing area" and where the chances of malignant changes are far greater, gastrectomy is indicated. Finally and in repetition the question of operation and what operation, is determined as follows:

I. Ulcers of the antrum and pylorus along the lesser curvature and duodenum are benign and frequently heal under medical treatment. Dangers are perforation, hemorrhage and obstruction.

II. Ulcers on the gastric side of the pyloric canal and outside the "ulcer bearing area" may or may not be malignant. The possibility of malignancy requires excision or gastrectomy.

III. Excision for malignancy should be wide and extensive and should therefore be extended into gastrectomy.

IV. The function of the stomach following gastrectomy is comparable with that following gastro-enterostomy and superior in every way to that following "V shaped" and "Sleeve" resections.

INCIDENCE OF SYPHILIS IN NORTH CAROLINA

C. A. Shore, Director

State Laboratory of Hygiene, Raleigh

It is necessary first to say that the title does not quite describe the paper which I shall, with your permission, read.

Unfortunately there is insufficient data to form any really accurate estimate of the extent of syphilis infection in the State.

There has been only one effort made to determine incidence of infection in the general population and that only for the colored race and in one county. Pitt County was chosen for the experiment and it was thought to be representative of average condition. In this county, the attempt was made, in coöperation with the United States Public Health Service and the Rosenwald Fund, to secure blood from every negro in the county. The response was surprisingly good and 11,395 individuals allowed specimens to be taken. About 12½ per cent gave a definitely positive Wassermann test.

The percentage of positives in the city of Greenville and Farmville was, as nearly as we could estimate, twice as high as among the rural negroes.

While the testing of the blood is by far the best—I may say the only way to estimate the percentage of infection, the actual percentage is certainly higher than the number of positive Wassermanns. Not only is an occasional case missed, but all cases in the primary stage are omitted since a positive test cannot be obtained at this stage. It is therefore certain that the percentage of infection is higher than 12½ per cent in Pitt County, and by inference in the State as a whole.

It is generally assumed that the white race is not so heavily infected as the negro, but there is no accurate data at hand whereby this can be proven.

The records of the State Laboratory of Hygiene for the entire State show that we examined 57,531 specimens in 1929 and 74,444 in 1930. If we assume that one plus and two plus results are positive we find that out of the total 131,975, 29,522 tests gave a positive result. This is approximately 22 per cent and the percentage is practically the same for each year. I think that I am right in assuming that the majority of these specimens came from suspected syphilitics, but a good many came from groups of food-handlers and other small selected groups of the general population.

In the State Laboratory of Hygiene and in most other public health laboratories with which I am familiar, the laboratory is far removed from the patient and it is impossible to secure accurate clinical information. Some laboratories make a serious attempt to obtain such information, but nowhere with complete success. The doctors will not supply it and sometimes this is intentional in the effort to guard the identity of the patient, or for some other reasons.

It would be extremely desirable, if our records could be used as the basis for accurate statistics and I regret that this cannot be done, but after all, the primary purpose of these tests is to aid the physician and health officer in diagnosis. The State's interest in this is justified because the chief check to the spread of the disease is the treatment and cure of individual infections, and the great majority of the cases cannot be diagnosed without laboratory assistance.

It may also be of interest to present a list of specimens sent by counties. At the present time I can show this for a period of eight months only. We now keep all records by counties as here shown, and as soon as a sufficient clerical force is obtainable I hope to show similar figures going back to the beginning of the work.

Alamance	546	Bladen	30	Caswell	4
Alexander	32	Brunswick	22	Catawba	388
Alleghany	23	Buncombe	371	Chatham	29
Anson	427	Burke	618	Cherokee	49
Ashe	15	Cabarrus	507	Chowan	128
Avery	69	Caldwell	124	Clay	9
Beaufort	1,612	Camden	3	Cleveland	366
Bertie	193	Carteret	118	Columbus	236

Craven	462	Johnston	211	Richmond	411
Cumberland	1,346	Jones	0	Robeson	665
Currituck	11	Lee	213	Rockingham	386
Dare	10	Lenoir	768	Rowan	412
Davidson	400	Lincoln	124	Rutherford	265
Davie	42	Macon	51	Sampson	208
Duplin	94	Madison	67	Scotland	178
Durham	2,348	Martin	159	Stanly	145
Edgecombe	1,626	McDowell	141	Stokes	12
Forsyth	5,927	Mecklenburg	742	Surry	437
Franklin	233	Mitchell	49	Swain	67
Gaston	777	Montgomery	72	Transylvania	37
Gates	22	Moore	800	Tyrrell	6
Graham	0	Nash	135	Union	129
Granville	363	New Hanover	2,692	Vance	401
Greene	67	Northampton	67	Wake	5,461
Guilford	1,202	Onslow	54	Warren	90
Halifax	861	Orange	263	Washington	26
Harnett	87	Pamlico	8	Watauga	38
Haywood	181	Pasquotank	183	Wayne	1,337
Henderson	190	Pender	29	Wilkes	55
Hertford	40	Perquimans	11	Wilson	850
Hoke	253	Person	71	Yadkin	17
Hyde	3	Pitt	3,953	Yancy	6
Iredell	798	Polk	32		
Jackson	30	Randolph	193		

I have already referred to the fact that most cases of latent syphilis can only be diagnosed by laboratory tests, and the clinician in this field is therefore quite dependent on laboratory aid. However, no one knows better than the laboratory man, himself, the limitations and exceptions to almost everything he does. There are especial limitations to the Wassermann test and to be of full value it must have correct interpretation. I would like, therefore, to briefly review some of the essential points to consider.

Osler's remark that "While one swallow does not make a summer, the finding of one crescent makes a diagnosis of malaria," is often quoted. Some other positive laboratory findings are similarly definite, as for instance, the finding of the Negri Bodies in the brain cells which makes a definite diagnosis of rabies. But with the Wassermann test alone no one can say with absolute and literal certainty that the patient has, or has not, a syphilitic infection.

Practically, however, a four-plus Wassermann result does most often justify a diagnosis of syphilis, while on the other hand a negative result does not have the contrary significance. Whatever the true nature may be of the substance in the syphilitic blood which is responsible for the positive test, we know that it is not associated with other infections, with the possible exception of the tropical disease known as Yaws.

On these statements there is general agreement, but many variations of the original method of making the test have gradually developed, and there is as yet no general agreement as to which is the best method. Unfortunately, tests made on the same blood by different methods do not give one hundred per cent agreement. This has been demonstrated over and over again. No comparative series of tests, if made on a large number of specimens, have ever given absolute agreement and this is true not only as between different methods, but it is also true with the same method as performed in different laboratories.

If we admit all these limitations—and we do—the question naturally arises, is the test worth doing at all? The only true answer is that the test remains invaluable and indispensable, but the limitations must always be borne in mind, and it is necessary to make correct interpretation.

It has already been said that a four-plus result usually justifies a positive diagnosis and it may not be amiss to state once more that a positive blood test cannot be obtained when the chancre first appears. It seems easy to forget or overlook this fact. A positive result may be shown after the chancre has been present for two or three weeks but more often the blood is continuously negative until the symptoms of the second stage appear. If the disease is untreated, a four-plus result continues from that time on.

It is in treated cases that the greatest variations occur. It is not uncommon during treatment for results to vary from one plus, two plus or even four plus, to negative and then back again to positive and it is in treated cases that the various methods differ most in results.

Kolmer says—to quote one well-known authority—"One commonly observes that during the first few weeks of treatment of chronic syphilis the reaction becomes stronger, followed by a gradual decrease to negative, but with frequent exacerbations."

It must also be remembered that it is frequently possible to obtain a blood negative and a spinal fluid positive if the disease has involved the central nervous system.

As an index of cure, one negative result cannot be accepted, but a series of negatives, with long intervals between tests, must be secured.

And now just a word as to choice of method. Whatever method is used, it is absolutely necessary that the technique be the same from day to day. With this test the personal factor is unusually important.

When the State Laboratory of Hygiene began this work thirteen years ago we decided that since we could not be in close clinical contact with the patient, it was important to choose a method which would practically never give a false positive. There are methods which give a few more positive results, especially in treated cases, than the one which we chose, but these methods also give an occasional false positive. It is comparatively easy to explain to the physician, who has never before used the Wassermann test, that the patient may have syphilis even though he should receive a negative Wassermann report, but if in addition, we would have to throw doubt on the positive results, we believed that the value of the work would be greatly diminished.

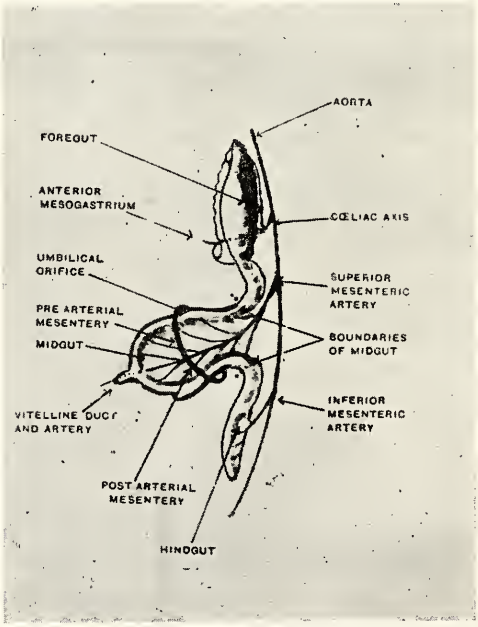
We still think that our decision as to method was wise when made, but by this time the medical profession has become more familiar with the interpretation of the results and for some time we have wanted to test each specimen by at least three methods. We believe that an occasional contradictory report by different methods would now be understood and perhaps our work would be of greater value. The only reason why we have not already made this expansion is on account of the additional expense.

Under the conditions which have faced us for several years we have had steadily increasing work in practically all fields and a simultaneous shrinkage in appropriation. Just as soon as possible this expansion will be made.

SURGICAL SIGNIFICANCE OF DERANGEMENT OF INTESTINAL ROTATION AND DISTRIBUTION (LANTERN SLIDES)

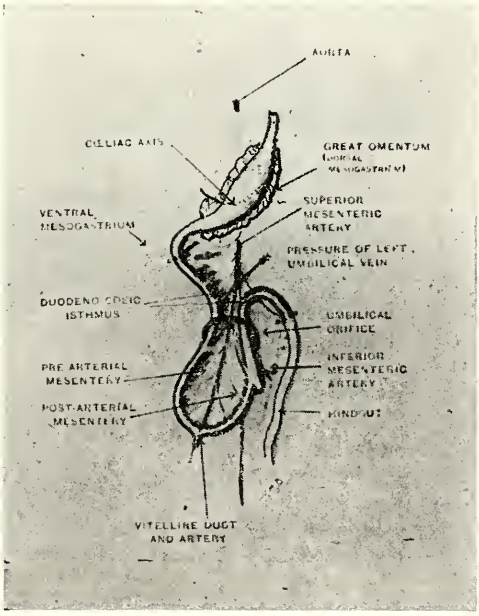
Thomas Meares Green, M.D., F.A.C.S., Wilmington

During fetal development many derangements of distribution of the abdominal portion of the alimentary tract may occur. Those derangements that call most frequently for immediate relief manifest themselves with volvulus during early infancy and are due largely to improper disposition of the abdominal portion of the alimentary tract.

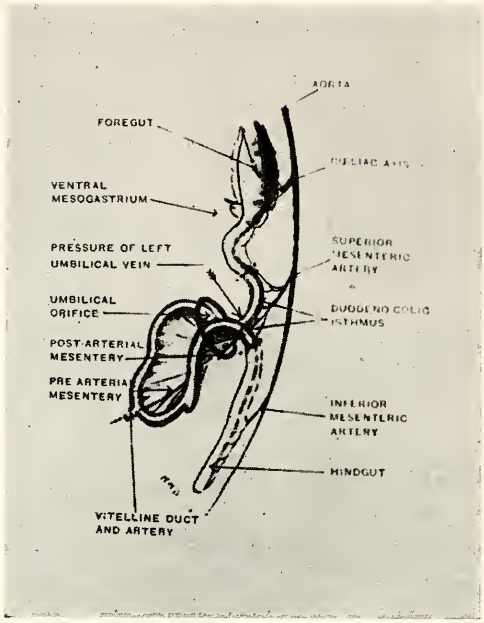


No. 1 (Dott). The alimentary tract at the fifth week of fetal life. Here the three divisions, foregut, midgut, hindgut are shown attached to the aorta in the midbody line by their special mesentery, with special blood supply to each division. The midgut protruding through the umbilical ring into the cord.

The first portion, or foregut, (from which the stomach and duodenum as far as the billiary papilla is formed) is practically never at error in location or attachment. This is quite true of the third portion or hind gut (from which is elaborated the left transverse colon, simoid and rectum). In the mid gut portion however (from which arises the terminal duodenum, jejunum, ileum, cecum, ascending and right half of the transverse colon) practically all of the errors of disposition or attachment occur. In order that we may better understand the pathology of these errors of distribution and attachment, let us briefly review the normal development of the abdominal portion of the alimentary tract, its formation, its distribution, as well as its fixation within the abdomen. At about the fifth week of fetal life (Figure 1) the alimentary tract is composed of three distinct loops or subdivisions, which may be designated as the foregut, midgut and hindgut, all of which are attached by their special mesenteries to the aorta in the midbody line. In each mesentery runs the special blood vessel for its supply; i.e., the celiac axis to the foregut, the superior mesenteric artery to the midgut and the inferior mesenteric artery to the hind gut. Already at this stage the bulge of the stomach may be seen in the foregut and the cecal bud or beginning of the formation of the cecum on the midgut. As the stomach grows it develops more rapidly on its greater curvature than on the lesser curvature, causing it to assume the oblique and finally transverse position. (Figure 2.) It



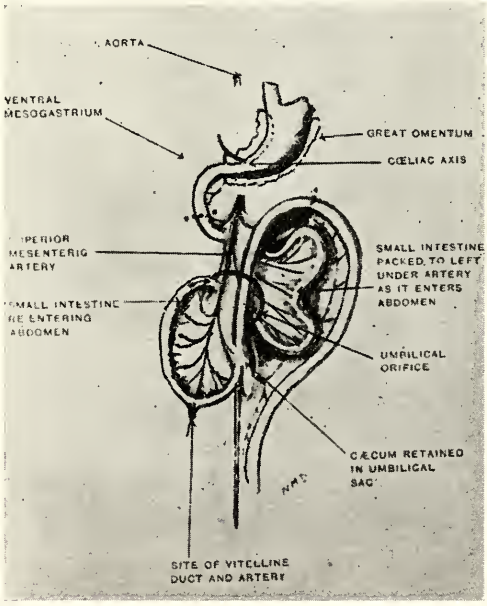
No. 2 (Dott). Eighth week, shows the stomach assuming the transverse position carrying the duodenum with it. The arrow shows the point of pressure of the left umbilical vein. The cecal bud is definitely developed. The hind gut is fixed definitely and the colic angle has developed.



No. 3 (Dott). Eighth week, shows the first stage of rotation being further accomplished by the downward pressure of the left umbilical vein on the pre-arterial leaflet of the midgut. The rapid development of the midgut is shown.

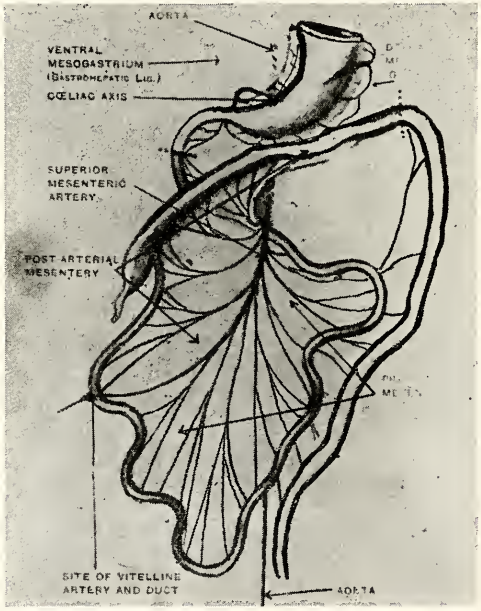
carries the first portion of the duodenum with it, giving to that portion of the duodenum its horseshoe-like curve, which is further accentuated by the development of the pancreatic bud within its curve. The thickened, shortened mesentery of the duodenum further serves to fix this portion. The development of the stomach and most of the duodenum is controlled by intrinsic forces and not dependent upon other factors, hence this constancy of position. From the upper end of the mesentery of the hindgut, which occupies a mid line position, there develops a thickening or band-like formation within its mesentery, which attacks the upper portion of the hindgut to the vicinity of the origin of the superior mesenteric artery. This band, as described by Frazier and Robbins, does not grow as rapidly as the gut or its mesentery, so therefore is much shorter and acts as an anchorage. The hind gut being hitched up at this point by this band, gradually becomes flexed, which flexure is known as the colic angle. The position of the hindgut then becomes fixed at an early date and like the foregut is constant in its position. The midgut can be seen now as a loop situated within the abdomen and protruding partly out through the umbilical opening into the cord. The hermiation of the midgut becomes necessary, due as Frazier has suggested, to the rapid development and abnormal size of the fetal liver as well as to the rapid growth of the gut itself, which literally pushes the midgut into the cord. (See Figure 2.) Traversing the mesentery of the mid gut is the superior mesenteric artery, which

enters the mesentery at the constricted area between the duodenum and the colic angle. This narrow mesentery is known as the fetal mesentery. The mesentery of the midgut is divided in two portions by the superior mesenteric artery, one portion known as the per arterial portion, the other the post arterial portion. As we have just seen, these two leaves of the midgut mesentery are attached posterially in the narrow space known as the duodenuo colic angle. The development of the midgut is now very rapid and that portion of it supplied by the anterior or pre-arterial leaflet develops more rapidly in length than the portion attached to the post arterial leaflet. Indeed, the post arterial leaflet gradually becomes shorter and thicker. The right umbilical vein has now become obliterated but the left persists pressing down on the pre-arterial portion of the midgut loop (Figure 3), due to the enlarged liver, forcing it down and to the right, the post arterial leaflet being pushed up and to the left, causing the midgut to assume an "S" shape appearance. This constitutes the *First Stage* of rotation. Anomalies of this stage only occur when total extroversion occurs. There is also an increased growth in the cecal bud and the colon above it. The first stage of rotation occurs between the fifth and tenth week. At the beginning of the tenth week we see the *Second Stage* of rotation begin. According to Frazier and Robbins, there occurs at this time a definite shrinkage of the size of the liver so that space within the abdominal cavity is now available. Indeed, a suction



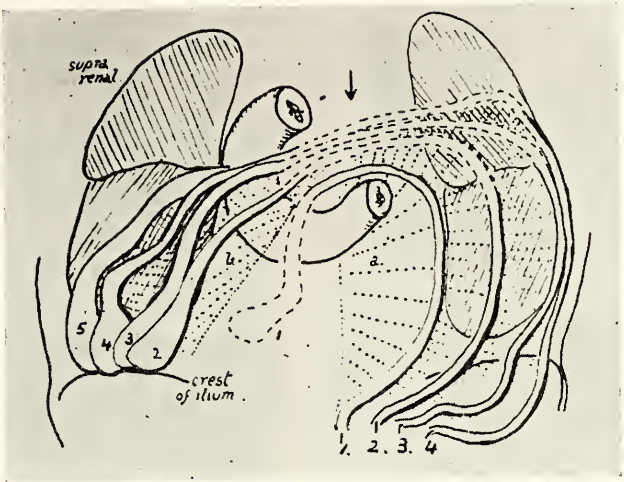
No. 4 (Dott). Tenth week shows the return of the midgut to the abdomen from the umbilical cord by an anti-clock wise rotation about the superior mesenteric artery. The succeeding loops pushing the hindgut from its mid-line position well over to the left. The cecum and distal portion of the superior mesenteric artery entering the abdomen last.

force or vacuum is created so that the midgut gradually begins to return to the abdomen. This is facilitated by the fact that the cecum is so large that it remains in the cord with the most distal loop of the midgut and enters the abdomen last. (Figure 4.) The superior mesenteric artery passes obliquely downward from its origin at the aorta out through the umbilical opening so that it stretches like a rope across the abdomen. It is manifested that all of the gut cannot return at once through the comparative small umbilical opening. In order for the gut to return to the abdomen it must do so in an orderly manner if the proper distribution of its parts is to occur within the abdominal cavity. This normal reduction begins with the passage of that portion of the small gut nearest the duodenum downward and beneath the mesentery artery in an anticlock wise manner from right to left. Other loops follow, until all has entered except the coecum with the terminal portion of the mesentery artery. As the midgut passes into the abdomen the coils passing from right to left behind superior mesenteric artery crowds over to the only available space within the abdomen; i.e., to the left and upper areas, pushing the hind gut from its midline position over to the left, downward and backward. The last coil to leave the umbilicus carried the distal portion of the mesentery artery with it. (Figure 5.) The cecum follows,



No. 5 (Dott). The second stage of rotation is now complete. The entire midgut has returned to the abdomen from its position in the umbilical cord, rotating in an anti-clock wise manner behind the superior mesenteric artery. The duodenum has been made to pass behind the supperior mesenteric artery from right to left, the ileum and jejunum to pass behind the superior mesenteric artery to crowd the hindgut from the mid-line to the left upward and downward. The cecum entered the abdomen last and lies on an anterior plane to the superior mesenteric artery. The second stage of rotation of the midgut is complete and the essentials of the permanent disposition of the viscera has been attained.

but lies on an anterior plane to the small gut, on a level with the umbilicus and anterior to the mesentery artery. As the colon grows it lengthens and straightens out, carrying the cecum upward and towards the under surface of the right lobe of the liver. (Figure 6.)



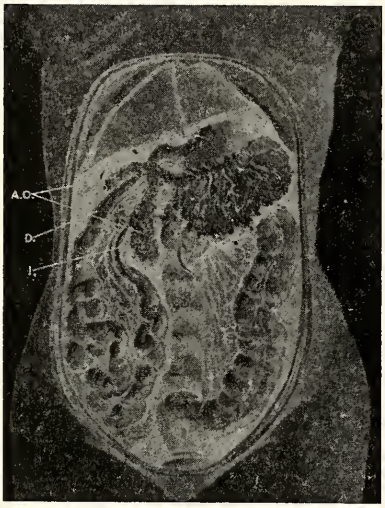
No. 6 (Frazier). Progress of the third stage of rotation. The colon by an elongation process passes successfully from the subpyloric to the subhepatic, and finally by descent to the right iliac fossa position, carrying with it the distal portion of the small gut. The mesenteric now rapidly fuses with the pariatal peritoneum, fixing the various elements in their normal relation.

Later as it elongates it passes downward to the right iliac fossa, carrying with it the mesentery and superior mesenteric artery. This completes the second stage of rotation. From its free unfixed position, we find the ceocum when it first enters the abdomen may pass in most any direction which accounts for most of the errors of improper distribution and abdormal fixation. In this anti-clock wise rotation about the superior mesenteric artery the duodenum has been made to cross behind the artery, the cecum to cross in front of it, the hindgut crowded downward and to the left and the coils of the mid gut to pass behind and arrange themselves from the left hypochondrium to the right iliac region. In the Third Stage of rotation the cecum further elongates and descends to the right iliac region the superior mesenteric artery deviating downward and to the right with it. The post arterial mesenteric leaflet becomes obliterated while the prearterial leaflet fuses with the posterior parietal peritoneum to form the mesentery of the small gut, acquiring an attachment from the second lumbar vertebra downward to the right iliac vessels. This fusion is so marked with the cecum and the ascending colon that its mesentery is practically obliterated like that of the hind gut. However, the mesentery to the transverse colon remains long.

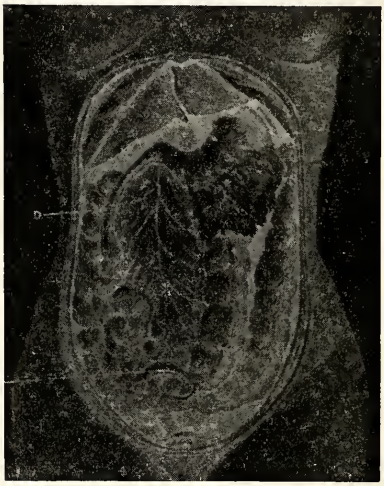
Derangements of distribution include, according to Dott,

1 Non rotation
2 Mal rotation
3 Reverse rotation

Anomalies of distribution do not occur in the foregut or in the hindgut, because of their constancy of development and further because their development is not so elaborated as that of the midgut. (Further it is really found to occur during the first and third stage of rotation in the mid gut. It is common in the second stage. The etiology of anomalous arrangement and fixation of the gut is somewhat obscure. Mr. Norman Dott explains it as due to the sudden return of all of that portion of the midgut situated within the cord through an abnormally large umbilical opening. This would preclude the orderly and gradual return of the pre-arterial loop of the midgut to the abdomen and hence prevent proper rotation and arrangement within the abdomen. Adhesions are not etiological factors since only a mobile intestine could reach these abnormal positions. Different pathological arrangements of the mid gut depend upon which direction the cecum takes after its reduction to the abdomen. (Figures 7 & 8.)

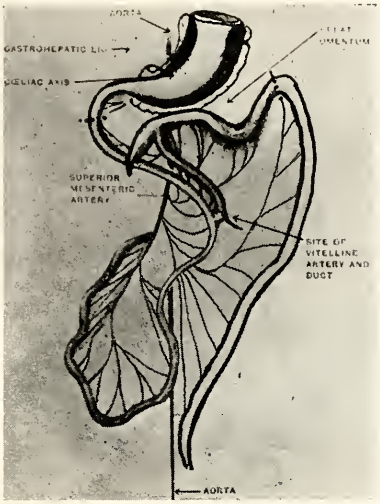


No. 7 (Waugh). Represents the condition of non-rotation, entire colon to the left side of the abdomen, small intestine to the right side of the abdomen, cecum entering the colon in the pelvis.

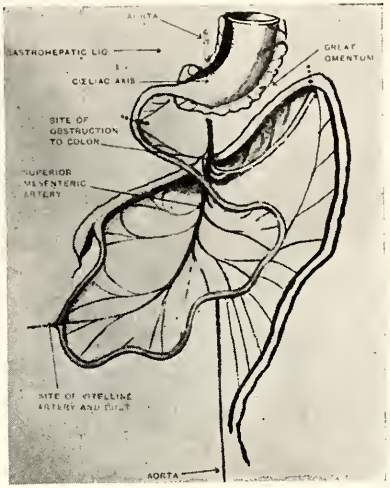


No. 8 (Waugh). Another type of malrotation with cecum fixed in the subhepatic position. No descent of cecum to right iliac fossa. Ileum entering the cecum above.

In non rotation it passes upward into the left quodrant, so that the entire colon and cecum are arranged to the left of the midline with the entire small bowel to the right of the midline, the ileum crossing from right to left to enter the cecum. In mal rotation (Figure 9) the cecum passes up to the region of the pylorus and becomes attached there or further over into the sub hepatic area, which prevents its elongation and descent. This leaves an elongated narrow mesentery of the fetal type with no points of fixation of the ileum and jejunum except in the narrow duodeno colic angle. In reverse rotation (Figure 10) the loops of small gut, instead of passing from right to left behind the superior mesenteric artery, pass from left to right in a clock wise

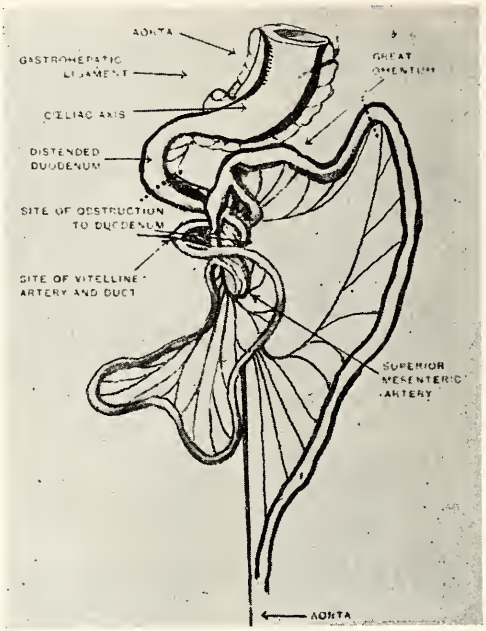


No. 9 (Dott). Represents mal-rotation. No descent of the cecum, preventing diffuse attachment of mesentery of the small gut. The only attachment the mesentery of the small gut has is in the narrow duodenal colic angle. Volvulus very prone to occur.

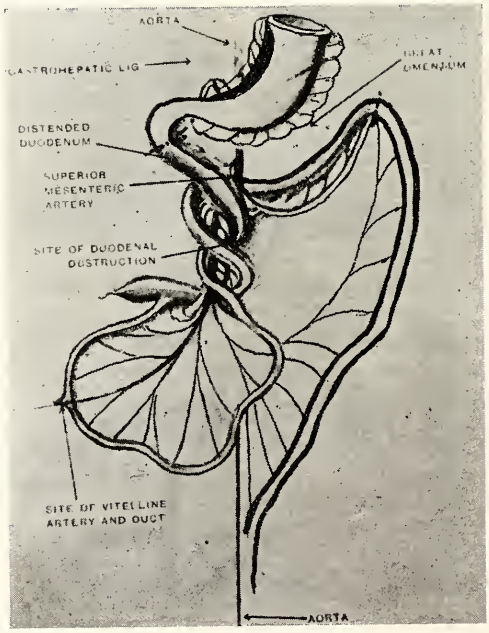


No. 10 (Dott). Represents reverse rotation. The gut entered the abdomen through the umbilicus during the second stage; passed from left to right in a clock-wise manner instead of from right to left in an anti-clock-wise manner. It is impossible here for the cecum to ever reach the right iliac fossa. This is the rarest of all types.

manner. This brings the cecum to lie behind the superior mesenteric artery where it is fixed. This is a rare type of anomaly. Derangement of the Third Stage consists largely of an undescended coecum in the sub hepatic area, due to too early fixation or to a pelvix cecum, due to no fixation. Under any of these circumstances, volvulus and obstruction may occur, especially in infants. The volvulus, as a rule, is not sufficiently tight at first to interfere with circulation, but it practically produces obstruction of the lumen of the gut. Later, however, circulatory disturbances will occur and gangrene develop. Clinically the condition is not very difficult to diagnose in infants, but is especially difficult in older children and adults. In infants there is the picture of obstruction, incessant vomiting of everything, the presence of peristalic gastric waves. While this vomiting is projectile it does not occur as soon after taking of food as in hypertropic pyloric stenosis and contains large quantities of bile. The presence of bile in the vomitus would at once suggest that the condition is not pyloric stenosis. Early in the condition the obstruction is not always so complete and it is possible to find some milk curd and bile in the washing of the colon. The X-ray of the stomach will show the dilated stomach and duodenum down to the billiary papilla, and the X-ray of the colon will at once establish its position. When the volvulus occurs, it will usually include all of the small gut, (Figure 11) or all of the small gut with the cecum and ascending colon (Figure 12). Mr. George



No. 11 (Dott). Represents the volvulus of the small gut only in mal-rotation. The cecum having become permanently fixed in the subpyloric position.



No. 12 (Dott). Represents volvulus of the entire midgut, including not only the small gut, but the cecum, ascending and right half of the transverse colon.

Waugh of London recently published an interesting paper in which he reports four cases out of five diagnosed in older children. In addition to the peculiarity and irregularity of the abdominal pain, i.e., not associated with taking food or bowel movement, he pays great stress to the emptiness of the right side of the abdomen. It seems to occur more frequently in the male during the first few days of life. When demonstrated in adults, these anomalous arrangements of the intestines are usually discovered during an operation for appendicitis, the appendix found displaced, as it was in one of my cases. Norman Dott in reviewing 45 cases, found 35 discovered accidently in adults which gave no symptoms. Weible reports a series of 67 cases of volvulus, many in adults. It may exist far more frequently than one would suppose. The treatment in infants is imperative and must be instituted at once. It is most important to know, not only that the volvulus exists, but it is well to know as far as possible in a general way, what the anomalous distribution is. The incision must be located at the point in the abdomen which gives most ready access to the seat of pathology. Fortunately, the upper right rectus approach usually answers this question. The treatment consists of reduction of the volvulus which we have seen includes usually all of the small gut. The mesentery of this mass of gut is untwisted, after which fixation of the ascending colon and coecum at several points to the parietal peritoneum is usually all sufficient.

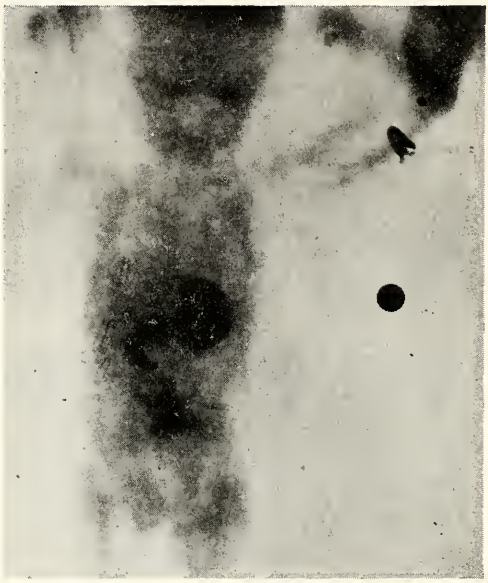
There is an extremely high mortality rate, particularly in infants. I feel, however, that this high mortality rate, especially in infants,

No. 13. Represents the barium distended stomach of this baby, showing marked dilitation of the stomach and duodenum down to the billiary papilla.

was due to the fact that most of these cases were moribund when presented for surgery.

The following case reports are submitted as a contribution to the literature on this subject:

Case 1, Baby R., age ten days, female child, referred by Dr. Bender of New Bern to Dr. J. B. Sidbury at the Babies Hospital, with whom it was my privilege to see the case. There was a history of normal birth, this being the third normal child of these parents. Vomiting began immediately after birth upon taking food, was incessant and projectile in character and consisted of fluid swallowed, with a large quantity of bile. Colonic washings showed few milk curds. (Figures 13 & 14.) X-ray of the barium filled stomach showed a marked dila-



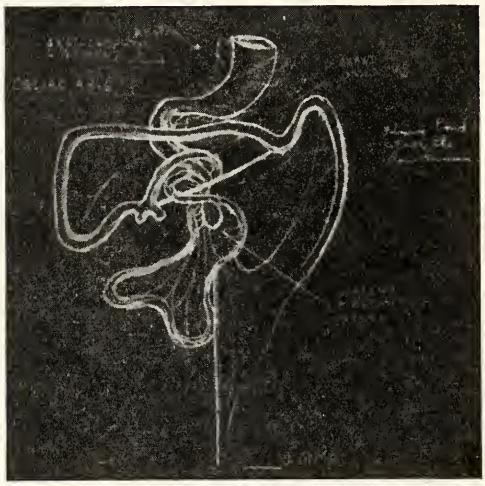
No. 14. Another view of the same stomach after vomiting has occurred, demonstrating the same points.

tation of the stomach and duodenum. The child had been sustained with glucose intravenously. An operation was advised, diagnosis of duodenal atresia. The child was given 1/77 of morphine and the right rectus opened in its middle third. Upon entering the abdomen a few whiffs of ether were given to complete an anesthesia. A marked torsion of the entire midgut in a clock wise direction was demonstrated (Figure 15). Circulation in the mesentery was not interfered with. The twist consisted of one and one-half complete turns. After unwinding the volvulus the gut would be readily distended with air blown into the stomach through a stomach tube and made to pass into the gut by pressure on the stomach. The mesentery was elongated and narrow of fetal type and attached only in the duodeno colic angle. This mesentery was common to the small gut, cecum and ascending

No. 15 (Dott). Shows the condition found at operation. The entire midgut was included in the volvulus, which consists of one and one-half complete turns of the mesentery in a clock-wise manner. The mesentery was elongated and of fetal type, attached only in the duodeno colic angle.

colon. No fixation of the cecum and ascending colon had occurred. The cecum and ascending colon were fixed at several points to the parietal peritoneum with sutures. The child made an uninterrupted recovery and is now well developed, healthy, six months child.

Case 2, Baby S., referred to the Babies' Hospital by Dr. J. W. Carroll of Wallace. It was my privilege to see this child with him and Dr. Sidbury. This child was also a female child four days old, normal appearance after a normal birth. Had been vomiting everything since birth. Vomiting was persistent, projectile and consisted of fluids taken plus a great deal of bile. Peristaltic gastric waves were present, but vomiting did not occur as quickly after taking fluids as it does in pyloric stenosis. Washing of the colon showed a few milk flakes, but no bile. Operation was determined upon immediately, diagnosis, volvulus of the mid gut. The child was given 1/77 morphine and the right rectus opened under a local anesthetic. No other anesthetic was necessary. There was a volvulus of 1¾ complete turns of the small gut in a clock-wise direction. (Figure 16.) The duodenum did not pass across the spine but ran downward to the right side of it and emerged from its retro-peritoneal position there. At this point a band was found which passed across the duodenum from above and was attached to the mesentery of the cecum below, having pulled the cecum sharply upward and to the left out of the right iliac fossa. After the duodenum merged into the jejunum the first loop



No. 16. Shows a volvulus of one and three-quarters complete turns in a clock-wise direction of the small gut, with an adhesive band passing from the mesentery of the transverse colon across the duodenum to the cecum, preventing its descent to the right iliac fossa and attachment there.

of jejunum passed upward and to the left, then across the spine and downward to the right. (Figure 17.) The mesentery of this loop was fused with the mesentery of the transverse colon so that the jejunum really merged into the abdomen through the mesentery of this loop. I do not feel, however, that this condition had any bearing upon the pathology at hand. After dividing the band across the duodenum the coecum was returned to the right iliac fossa and fixed there by several sutures. The mesentery of the ascending colon had practically been fused with the parietal peritonem This child made an excellent recovery. Died at six months of age from pneumonia. No autopsy.

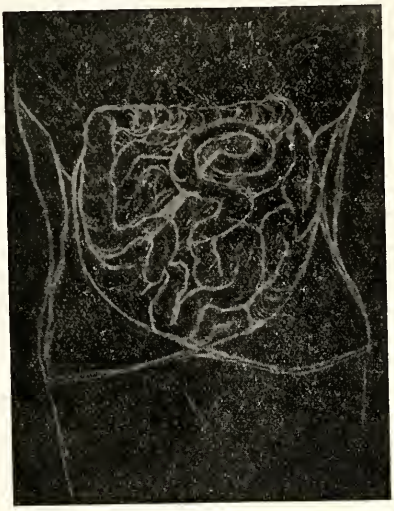
Case 3, colored adult, female. History of mild repeated attacks of pain along the right costal border. In spite of this, I felt that the present acute attack was a post cecal appendix of high location. At operation the cecum and ascending colon were found to lie in the subhepatic area. (Figure 18.) Here was found a typical undescending cecum fixed in the subhepatic area with the ileum approaching it from below at the right angle. A large diseased appendix was removed. This girl made an uninterrupted recovery. I do not think that this mal position of the cecum interfered with her health. This is quite true in most pronounced types of mal rotation and non rotation after adult life has been obtained.

COMMENTS

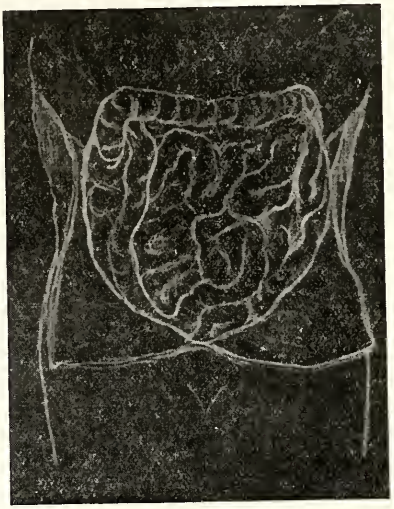
(1) It is quite possible that derangements of distribution exist more frequently than supposed.

(2) It seems reasonable to assume that the condition can be recognized more readily from a clinical standpoint.

(3) Early recognition will most certainly lead to improved results.



No. 17. Another view of the same case after untwisting the volvulus.



No. 18. Shows a typical undescended cecum in the subhepatic area with the ileum approaching it from below. Secondary fixation has prevented volvulus from occurring.

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THE CHAIRMAN: Discussion of Dr. Green's paper is now in order. The Chair recognizes Dr. Sidbury.

DR. SIDBURY: It has been my pleasure in the last fifteen years to have three of these cases. The first that I saw was at Dr. R. M. Pitbairn, who operated on this child and had a very satisfactory outcome. The other two cases Dr. Green has reported to you. There

are three tests. I want to emphasize mainly, the subject from a clinical standpoint.

These infants are within the first two weeks of life, they vomit everything taken, and they vomit projectile and bile heads. All of these cases have violent vomiting. As Dr. Green has said, if they have vomited violently there is the possibility of a pyloric stenosis, so that the pylorus is so tight that the food cannot get out into the intestine; it is also too tight for a reverse peristalsis. Dr. Green has emphasized the importance and the simplicity of the diagnosis and the importance of the early diagnosis. If we bear those things in mind, violent vomiting, an infant under two weeks of age who has symptoms of pyloric stenosis, we certainly must bear in mind the points which Dr. Green has brought out, of an early diagnosis and an early treatment from the physical standpoint only, is the only thing offered to these youngsters for a successful outcome. (Applause)

THE CHAIRMAN: Is there any further discussion? I will ask Dr. Ross to present the next speaker.

DR. R. A. ROSS, Durham: Just as the men from Jefferson would come out to Pennsylvania to see Dr. Clarke and Dr. Deaver; so would we go down to see their very illustrious men.

It is most pleasant to recall the clinics of Dr. McRae, the illuminating and friendly clinics of Dr. Da Costa and the skillful operations of Dr. Bland.

We all rejoice that we have Dr. Bland with us today.

It gives me great pleasure to welcome Dr. P. Brooke Bland, Professor of Obstetrics at Jefferson Medical College, who will speak on "The Toxemias of Pregnancy." (Applause)

TOXEMIA OF PREGNANCY FROM THE STANDPOINT OF THE GENERAL PRACTITIONER

P. BROOKE BLAND, M.D., Philadelphia, Pa.

Historically, the toxemias of pregnancy are as old as the human family itself, and as a cause of morbidity in the propagation of mankind, the group of disorders embraced in that term stand in the foremost rank.

The extent of morbidity arising from pregnancy toxemia can scarcely be measured by the wildest conjecture, but it does not seem far of the mark to say that in the genesis of the somewhat more than two billion persons on earth today that more than fifty per cent of the mothers were more or less toxic.

Confining geographically this feature of my prefatory remarks to our own country, with more than two million full term pregnancies occurring therein each year, it is altogether likely that one-half of the patients experienced some form of metabolic intoxication, to say nothing of the large unrecorded number in whom pregnancy terminated prematurely as a result of the disorder itself.

The citation of the foregoing figures, meagre though they be, probably conveys some idea of the extraordinary frequency of the con-

dition, a condition that does not find a parallel in any other department of Medical Science.

While morbidity whatever may be its basic origin, must be looked upon as an expression of organic derangement, it obviously follows that morbidity must inevitably lead to mortality in a certain number of instances.

It would not be logical to regard the intoxication of pregnancy as an exception to this well founded pathologic law, and as a cause of death, one finds that it stands second in that great lethal triad of pregnant and parturient women.

Chronologically, to it with septicemia as the ranking member and hemorrhage standing third, are ascribed seventy-five per cent of the maternal deaths occurring in pregnancy with its culmination in childbirth.

Literally, one may assert that septic infection is the most mortal complication of labor and toxemia the most frequent as well as the most deadly complication of pregnancy.

Speaking more specifically, statistics disclose that in America one mother out of every one hundred and fifty-five dies as the result of maternity. If those who succumb to the complications of pregnancy were included and provided all the facts connected therewith were unqualifiedly recorded, one would probably find the casualty figures extending considerably beyond the point named.

Viewing the problem from a world wide aspect, the figures become positively astounding and if based on the mortality rate, as registered in our own land, the total annual loss of motherhood must reach or exceed five hundred thousand.

In America the aggregate maternal mortality yearly is said to be higher than any other country in the world and to approach nearly twenty thousand.

From 1924 to 1928 inclusive, the number of maternal deaths recorded in the registration area of the United States aggregated 152,598, and of this number 28,367 or 18.6 per cent succumbed to septicemia. Certain other obstetric accidents accounted for 19,599 or 12.8 per cent, hemorrhage for 7,711 or 4.9 per cent, and pregnancy toxemia for 20,622 or 13.5 per cent.

In the foregoing figures reference was made to hemorrhage and it is prudent to recollect that this is mainly of the antepartum type. It is about equally divided between bleeding resulting from premature separation of the normally implanted placenta and the placenta previa.

Because of the intimate relationship between premature separation of the placenta and pregnancy toxemia, it becomes incumbent to recall that premature separation is almost invariably an expression or sequel of the condition under discussion.

Personally, I believe it is altogether in the line of conservative reasoning to claim that more than three-fourths of the cases of accidental hemorrhage have as their fundamental cause either a nephritic or pre-eclamptic intoxication.

Animal experimentation, as carried out by numerous investigators, particularly by F. J. Browne, seems to confirm this view.

It might be of interest to mention at this time that as a cause of death, tuberculosis still holds the foremost place among women of the childbearing age, with nearly 28,000 deaths each year, but in the race for lethal supremacy, it is exceedingly disquieting to find that in the same age period, namely, from fifteen to forty-four, maternity stands next in the point of frequency with nearly 20,000 deaths.

Tragic as the mortality figures are, the statistics of death cover only an insignificant fraction of the toll exacted by motherhood.

The morbidity statistics, the statistics of disease, relates a tale of grim tragedy that is almost endless in its dimensions. Because of the inordinately high mortality, not only in our own land, but throughout the world, there has come a reaction, long overdue, against the existing order of things.

Simple resignation and an indifferent complacency, if I may use these terms, are giving way to a resolute determination to place obstetrics on a higher plane.

The present widespread philosophical analysis of the specialty is not merely an accident. It implies a recovery of balance and a reassessing of human values. The immeasurable loss of things material and things human, with maternity as one of the chief contributors, must inevitably lead to a new epoch in obstetric practice.

I realize that it is unwise to deal in prophecy, for prognostications after all are scarcely more than hopes finding words and dangerous at best. To venture a forecast of what the next decade may bring is to fly in the face of wisdom, yet personally I believe we are verging on new and better days.

With this rather diagrammatic introduction, I shall now pass to a phase of my topic—the etiology of pregnancy toxemia—which I approach with a great deal of timidity, bewilderment and more or less disappointment; bewilderment because of the endless theories propounded as to its causation, and disappointment because every theory thus far advanced seems to be devoid of proof.

In the time set aside for my presentation, it is plain that it would be wholly impossible to discuss the manifold theories propounded. I shall merely mention a few.

To assume that the affection is the result of faulty maternal or fetal metabolism does not at first sight seem unwarranted, but even this most plausible theory lacks substantiation.

That toxemia may be provoked by imbalance of some sort in that mystical body of organs, designated the endocrine or ductless glands, is possible, but no evidence is forthcoming to demonstrate that it actually is.

For a time I felt that we had at last reached something tangible in the glycogen depletion theory, but from the investigations carried on in numerous clinics, including my own, I am reluctantly forced to confess that it, too, like ideas in general, brought forth to explain facts, lacks convincing support.

With bacteria in the etiologic background of most of the acute and chronic diseases of mankind, it is quite easy to conceive that organisms

might be etiologically related and, hence, be rightfully included in the long array of hypothesis tabulated.

That bacterial infection is influential has not been sustained by investigation and to me it is not susceptible of acceptance.

That deportation of elements of the placenta, or the elaboration of certain specific ferments therefrom, seems utterly without foundation.

Focal placental necrosis or infarction—now acknowledged to be a species of placental physiology—has been mentioned on several occasions, notably by Young, as possibly causative, but the process is present in almost every placenta expelled and, therefore, infinitely more frequent than the disease it is supposed to provoke.

From the purely clinical standpoint, toxemia should accompany placental infarction, not simply occasionally, but with a fair degree of constancy if that process initiated the disease.

Probably, on the whole, no part of the problem has received more sustained and consistent investigation, but very little light has been forthcoming.

By heritage and custom, we still cling rather tenaciously to the term toxemia, but we are utterly in the dark as to what it is.

The phrase has become a component and fixed part of our obstetric nomenclature, but we are impelled to use it in a qualifying key with the cautious acknowledgment that no toxines or toxic substances have ever been isolated.

It was the late Professor Zweifel, of Leipzig, who said: "Eclampsia is a disease of theories," and from the information at hand today, one could go somewhat farther—paraphrase his statement—and state that not only is eclampsia a disease of theories, but all the disorders comprising the toxemic group as well.

Finally, from the etiological side, one may say that pregnancy toxemia is the most obscure condition in the whole realm of obstetric pathology. About all one can assert with any sense of certainty is that the trouble is in some inexplicable and mystical manner related to pregnancy itself. Beyond that point, we are, unfortunately, unable to go.

Leaving the rather uncertain ground bordering on etiology, I am led to another feature of the subject that has long engaged the mind of the accoucher, namely, the proper arrangement or classification of pregnancy toxemia.

At last, owing to the work of Williams and his associates, especially Stander and Peckham, a classification of immeasurable value has been added to this hitherto rather vague subject.

Of the numerous contributions to obstetric science during the past decade, I look upon this as the most notable as well as the most enlightening.

Personally, I am quite convinced that this revised classification renders an infinitely more intelligent understanding of the subject as a whole.

While the former arrangement has not been materially altered, it is the addition of a new type hitherto unrecognized, though existing as the most frequent type of all, that gives to the new classification its

most impelling appeal. It is this feature of toxemia that will prove of immeasurable benefit to the general practitioner, to whom my remarks today are especially addressed.

The arrangement according to Williams, with a single modification of my own, is as follows: 1. Simple nausea and vomiting; 2. Pernicious nausea and vomiting; 3. Acute yellow atrophy of the liver; 4. Low reserve kidney; 5. Nephritic toxemia or nephritis complicating pregnancy; 6. Pre-eclampsia; 7. Eclampsia; 8. Unclassified toxemia.

In a study of a series of 801 cases, Williams found the relative proportion of the different varieties, not including simple nausea and vomiting, as follows: Vomiting of pregnancy 9.5 per cent; Low reserve kidney 34.5 per cent; Nephritic toxemia, or nephritis complicating pregnancy, 26.7 per cent; Pre-eclampsia 9.2 per cent; Eclampsia 12.5 per cent; Unclassified 7.5 per cent.

It will be observed that the low reserve kidney occupies the most conspicuous place in this group. At first sight it seems surprisingly frequent, but I am convinced that a careful analysis of a like series would show a rather striking similarity in figures.

From a retrospective study of a large number of toxemic patients observed in my clinic, I am fully persuaded that the percentage is not too high.

In the time allotted for my presentation, it is obviously impossible to discuss the different forms of intoxication in detail, so I shall from sheer necessity, briefly point out the most common clinical characteristics of each.

The simple type of nausea and vomiting is not included in the new classification. A broad general term, vomiting of pregnancy, is used.

I still feel that ordinary vomiting of pregnancy should be a constituent of the new architectural arrangement. I have long since abandoned the idea that ordinary morning sickness, or simple vomiting, even though occurring in approximately one-half of all pregnant women, is a natural concomitant of gestation, or physiologic, nor could I ever bring myself to believe that it had a so-called reflex or neurotic origin, though I am free to admit that it may arise with far greater frequency in individuals of a neurologic tendency.

With an ever enlarging group of observers, I have come to look upon the symptom complex as fundamentally an expression of organic disease. Because it may run a course of six or eight weeks and then spontaneously subside in most instances, is to me no criterion that it might not pursue a diametrically opposite course and by progressive gradations sink into one of the most serious complications of pregnancy, namely, the third form of intoxication or pernicious vomiting itself.

To assume any other attitude may lead, as it indubitably has in many patients in the past, to lamentable disaster. It is a condition that should never be viewed with a passive or serene expectancy. To regard it as a possible forerunner of hyperemesis, even though the possibility may be remote, appears to me as following the avenue of safety.

Owing to the extreme infrequency of acute yellow atrophy of the liver, it does not seem necessary to devote more than passing reference to that condition in this paper.

Fortunately, this is the most unusual form of gestational toxemia. It is characterized, as a rule, by an abrupt onset in the early or mid period of pregnancy. In some patients it may not make its advent until a later period.

It is associated with widespread dissolution of hepatic tissue. It pursues a most turbulent course and ends fatally in nearly all cases. Only occasionally does it follow a mild channel simulating a pernicious type.

During the past five years, we have had admitted to our clinic only one patient suffering with this form of intoxication. Recovery followed the generous administration of glucose. The pregnancy was not interrupted and the patient was delivered normally of a healthy child at term.

Another patient was observed sometime previously in whom the trouble seemingly began as an ordinary type of vomiting, passing gradually—not at all violently—despite glucose and almost every thing else, into the vicious form and ending, owing possibly to the rejection of proferred surgical aid, in a fatality.

Passing on to the type that looms so large in the revised version of pregnancy toxemia, namely, the low reserve kidney, I shall briefly refer, in the language of Stander, to the clinical criteria on which it is based.

These may be enumerated as follows: 1. It is the most frequent variety of the group, comprising those designated as the late toxemias; 2. It usually makes its appearance in the last trimester of pregnancy; 3. It is always associated with a moderate degree of hypertension, with the systolic pressure rarely exceeding 160 and with the diastolic ranging around 90 millimeters; 4. It is invariably accompanied by mild albuminuria, varying from a fraction to a gram or more to the liter of urine, together with a few casts; 5. It is accompanied by edema of varying degree in many patients, though in others this may be wholly absent; 6. It is not associated with chemical changes in the blood; 7. It is sometimes, though by no means always, accompanied by a moderate or rapid increase in weight; 8. It may or may not appear in subsequent pregnancies; 9. It never inflicts permanent damage to the kidneys or other structures; 10. Its clinical features disappear completely within a few weeks following confinement; 11. It is a relatively mild type of intoxication and occurs in something like five per cent of all full term pregnancies; 12. It never culminates in pre-eclampsia or in the convulsive stage of toxemia itself; 13. It heretofore was rather loosely included in that division of the toxemias described under the term pre-eclampsia; 14. It is readily amenable to a simple therapeutic plan.

With respect to nephritic intoxication, one may say that it is nothing more or less than nephritis complicating pregnancy. I am sometimes led to wonder whether it fills a truly legitimate niche in the old or even in the new classification.

It is a distinct entity in which the kidney condition is primary and the toxemia definitely secondary.

The fact that kidneys damaged by some form of antecedent disease are prone to break down under the stress of pregnancy—though under ordinary circumstances competent to carry on—seems to be the chief reason for the specific inclusion of this type in the toxic category.

While the toxemia does not differ materially from that observed in the non-pregnant nephropathic individual, the clinical course is rather distinguished and it is from this aspect, I assume, that it still finds a rather fixed position in the classification.

Here, it is only just to mention that it is not possible to classify the various types of nephritis complicating pregnancy, nor does it seem necessary to attempt to set apart the different forms.

Simonds, as an internist, in speaking of the different varieties of nephritis, made a very trite remark when he said no dogmatic clinical or pathologic classification is possible and that with this in mind the physician should no longer treat simply the name of a disease, but rather the individual afflicted.

From the figures already quoted, it is observed that nephritis is accountable for about twenty-five per cent of the pregnancy toxemias, and from a study of a large series of pregnant women, the disorder was found to occur in from two to three per cent.

The chief clinical features found in this variety may in epitome be enumerated as follows: An antecedent history of infection followed by renal complication; an onset relatively early at the end of the first trimester or sometime during the second—with all symptoms and signs pointing to renal incapacity; an advent invariably earlier, therefore, than in the low reserve kidney or in pre-eclampsia; an abrupt and progressive rise of blood pressure, rarely modified to any extent by therapy; an early appearance of a moderate degree of albuminuria with the urinary outflow normal or only slightly diminished; an ophthalmoscopic examination showing changes in the eye grounds which are more or less constant and which are regarded of prime importance diagnostically, not being present in any other form of toxemia; an alteration in the nitrogen-partition of the urine, the ammonia nitrogen increasing with a relative diminution in the urea nitrogen; an alteration in excretory function with the retention of nitrogenous material in the blood; an edema more or less marked and persistent, associated with facies typical of renal disease; an increase progressively of symptoms and signs with more or less permanency after the termination of the pregnancy; an increasingly more outspoken course and prompt recurrence in succeeding pregnancies, leading ultimately to hopeless anatomical derangement; physiologic incapacity and finally death, with an immediate mortality of more than three per cent and a remote death rate that scarcely can be measured.

As to Pre-Eclampsia—This form of toxemia should present very little difficulty in its recognition. It is classed in the group of the late toxemias and this carries the implication that it makes its appearance in the terminal stage of pregnancy.

Seldom does it appear before the sixth month. In most instances it arises sometime during the last three months.

Generally, it is sharp in onset and is characterized by the following clinical phenomena:

1. A rapidly rising blood pressure, reaching or exceeding systolically 200 or more and diastolically 100 or beyond.
2. A cephalalgia of varying intensity which is sometimes ushered in by disturbed vision, or even total blindness.
3. A distress in the epigastrium, amounting sometimes to intense pain, with or without vomiting, and due probably to morbid changes in the liver.
4. A striking diminution in the excretion of urine and the presence physically of an albuminuria, varying from a misty cloud to complete coagulation, and microscopically all varieties of renal casts.
5. A rapidly growing edema due to the retention of fluid.
6. A blood chemistry in all respects relatively normal, save for an increase in uric acid content and a lowered CO^2 combining power.
7. A fairly rapid and in most instances complete recovery during the lying-in period or within six or eight weeks postpartum.

Finally at this time it may be prudent to mention that if the condition is not recognized and promptly checked, it will almost of a certainty simply pass around the corner to its terminal and more tragic phase, eclampsia itself.

Now as to Eclampsia—this hydraheaded member of the toxemia group is familiar to all.

Clinically, it has a personality of such singular distinction as to render it well nigh unmistakable.

With this statement I shall bring to a close the academic discussion of my topic and consider in a brief way only the treatment of pregnancy toxemia from the aspect of the man in general practice.

I shall present the matter as it appeals to me and shall not dwell on those measures which I have learned from experience are of doubtful utility.

In discussing this final feature of my paper—Treatment—I shall cling, also to the rather orthodox classification and consider the therapy under three separate heads, namely: 1. Preventive or prophylactic treatment; 2. Medical treatment; and 3. Surgical treatment.

This course I must of necessity follow, for as yet no specific agent has come to hand, though several substances have been brought forward assumed to approach specific types.

Those most prominently mentioned, only to name a few, are glucose, magnesium sulphate and heparmone.

The first provides food, acts as a vehicle for conveying fluid and probably favors renal activity. The second is claimed to stimulate renal and skin function, overcome edema and combat convulsions. The third is said to counteract hypertension and this the preparation will unquestionably do, but there is no convincing proof to indicate that either of the substances described is endowed with specific properties.

I have given them all a fair and generous trial, but to embellish them with specific propensities would be carrying claims farther than I am willing to go.

Only with the basic cause of toxemia definitely known will its therapy pass from an empiric to a specific phase.

With all the means thus far advocated and practiced, one is forced to rely upon prevention as the most dependable method of all. In no other department of medical art can it be employed to greater advantage and it may in general be looked upon as the very foundation stone of successful maternity practice.

In the obstetric literature of the world, there is no recourse that stands out more conspicuously, no other on which more stress is placed, no other on which one may rest with a greater degree of confidence.

In this connection, it may not be amiss to refer to certain preventive measures now underway in European countries, and in this regard I have found the investigation being conducted by the Ministry of Health, of Great Britain, of extraordinary and absorbing interest.

Recently the Committee on Maternal Morbidity and Mortality, organized three years ago, submitted an interim report and in this it is pointed out that at the present time about two-thirds of the maternal deaths occurring in England and Wales are coming before this body.

In the report published 3,079 deaths are recorded, but the first 2,000 only are considered. The analysis of these has been purely clinical and administrative. They have been divided into two classes, the first group comprising the deaths directly due to pregnancy and childbirth, numbering in all 1,596, and a second group of 404, comprising those due to an independent disease concurrent with maternity, in which childbearing contributed to or accelerated death, or was present merely as an incident.

In the 1,596 deaths attributed directly to pregnancy and parturition, it was found that infection accounted for 616 or 38.6 per cent, toxemia for 317 or 19.8 per cent and hemorrhage for 270 or 13.5 per cent, making a total of 1,203 or 71.9 per cent directly due to maternity.

The Committee scrupulously analyzed these, as well as all others, with the view of ascertaining whether death was inevitable or might have been avoided in more fortunate circumstances.

They regarded it their duty to note in every case in which the available information, after being carefully considered, appeared to warrant it, a primary avoidable factor, in the train of events which led up to the fatal result.

The inquiry disclosed that a primary avoidable factor was present in 626 or in 39 per cent. By excluding irrevalent cases and those with insufficient information, the net percentage of preventable deaths reached forty-eight. In other words, in nearly one-half of the cases a primary avoidable factor was found.

Faulty antenatal care alone is recorded in the report as the primary avoidable factor in 226 or 36 per cent.

With the recital of the foregoing, it becomes obvious that the first item listed in the therapeutic plan, namely, prevention, is of consummate importance.

Now in regard to Prophylaxis: Under the heading of prevention are included all the measures found in the term prenatal care. This implies the most straight-forward and systematic study of all patients during pregnancy and I might add, parenthetically, that it requires as much thought, diligence, judgment and skill as operative obstetrics itself.

In far too many instances, it is practiced so perfunctorily and ineffectually that it scarcely deserves to be denominated antenatal care. It is not a half-way measure, nor is it susceptible of disguise.

Even the therapy of simple nausea and vomiting lies in the realm of prophylaxis and this is not found in a smug expectancy based on the erroneous assumption that the symptom complex is dependent on an underlying neurosis.

In considering this type of intoxication, it must be understood further that no two cases are precisely alike and that every case must be individualized.

Therapeutically, one may look upon prophylaxis as the one fundamental agency transcending all others and it is incumbent that it should be so regarded by all.

Embodied in the antenatal prophylactic plan, as a matter of summarization, are the following:

1. The most zealous scrutiny at regular intervals of every patient, inuluding an interrogation of all vital organs, the most important of which is the determination of arterial tension.

2. In the antenatal plan the patient must be instructed with regard to proper rest, the ingestion of food, the intake of fluid and the observance of all hygeinic laws.

3. With the advent of threatening symptoms or pertinacity of those already present, isolation, preferably in a hospital, with still more painstaking study is called for.

4. If, in spite of this regime carried out sturdily and rigorously for a period of eight or ten days, no improvement is observed, the gestation should be terminated forthwith by the most expeditious means possible.

5. During the first ten or twelve weeks this is best accomplished by dilatation followed by evacuation of the contents within the uterine cavity, in the succeeding four or six weeks by vaginal hysterotomy and thereafter by the induction of premature labor, in accordance with the method of Krause.

In speaking of the medical treatment, I shall refer first to the value of glucose in hyperemesis and simply say that it is a means of providing generous quantities of fluid—so urgently needed in patients toxically dehydrated—a certain quantity of nutriment and that, in addition, it stimulates renal function.

That it may be endowed with specific antidotal properties I am as yet not wholly convinced. That patients will and still do die in spite

of its administration does not lend support to the assumption that it may be used in a specific sense.

On the other hand, that it may and probably sometimes does save patients, otherwise doomed, discloses it has some value, or at least is not without merit.

The medical treatment of the low reserve kidney is exceedingly simple and resolves itself largely to a few days rest in bed. The response in such circumstances is so striking that therapy itself might be looked upon as a diagnostic test.

The medical treatment of the nephritic type of pregnancy toxemia is nothing more nor less than the treatment of nephritis along standard lines. There is not very much, if anything, one can do in a curative way.

Here again prophylaxis looms of extraordinary importance and a patient suffering with chronic renal infection should perhaps never marry, or if she does, pregnancy indubitably should, if possible be avoided.

In the event of conception occurring in an individual suffering with Bright's disease, it seems far better to terminate the pregnancy followed by sterilization provided the symptoms show no amelioration under treatment, than to allow the disease to progress into a hopelessly progressive or fatal type.

As to Eclampsia—With reference to the active treatment of convulsive intoxication, or eclampsia itself, it is found that the most satisfactory results follow a simple passive plan.

It is our custom in the face of this complication to practice the method—with slight modifications—advocated by Stroganoff. In brief, the most important features of this are as follows:

1. Immediately after the patient is admitted or comes under observation, morphine sulphate (grain ¼) is administered hypodermically.
2. A venesection is performed and 500 to 600 c.c. of blood is withdrawn.
3. Immediately following the extraction of blood, 300 c.c. of a 25 per cent solution of glucose is given and repeated until the patient receives 1200 c.c. in the course of 24 hours.
4. In all patients a catheterized specimen of urine is examined immediately after admission to the hospital.
5. Gastric lavage is practiced, provided the epigastrium is distended or the patient is vomiting foul or discolored material.
6. The colon is irrigated copiously and until the fluid injected returns clear.
7. One hour after the patient is seen, 30 grains of chloral, dissolved in 100 c.c. of milk or 100 c.c. of saline solution, are given by the rectum. (If the patient is conscious, the chloral dissolved in milk may be given by the mouth.)
8. Three hours after she is first seen, the chloral is repeated, either by the mouth or the rectum, depending on the state of the patient.
9. Seven hours after coming under observation, 22½ grains of chloral are administered by the mouth or by the bowel.

10. Thirteen hours after first being seen, this is repeated and it is given again 21 hours after admission.

11. It will be observed that under this regime the patient receives in all 127½ grains of chloral within the course of 20 hours.

12. If the convulsions cease after 24 hours, the dose of the chloral may gradually be diminished, although this drug in amounts of 7½ grains should be given every eight hours for a period of three days.

In order that the scheme may be perfectly understood, one may take, for example, a patient first seen at 10:00 A. M. At this time she receives the morphine. One hour subsequently, or at 11:00 A. M., the first dose of chloral is administered. Three hours later, or at 1:00 P. M., the second dose and seven hours later, or at 5:00 P. M., a third dose of 22½ grains. Thirteen hours later, or at 11:00 P. M., the fourth dose of 22½ grains is given and twenty-one hours later, or at 7:00 A. M., the final or fifth dose.

If signs of impending cardiac failure appear; manifested by dyspnea, cyanosis or edematous fluid in the throat or mouth, atropine, grain 1/50, is administered immediately, combined with 15 minims of digalen or digitalin grain 1/30.

Finally, in summing up, one may say that eclampsia cannot be looked upon prognostically with a comforting optimism, and I sometimes wonder whether therapeutically we have not in very recent years become too optimistic.

Unquestionably the conservative plan of therapy has reduced the death rate tremendously, but it is still, nevertheless, exceedingly high.

Kellogg states that, except for small or selected series, the mortality of toxemia of the non-convulsive type is about 2.5 per cent. Toxemia accompanied by convulsions, he says, does not fall far below 25 per cent.

In a personal study of 1,200 cases in the State of Massachusetts, in a series of three groups of 400 each, the mortality was 25, 24.8 and 50 per cent respectively. The patients in the first two groups, comprising 800 cases, were treated by the writer himself or his associates.

This author brings out an exceedingly significant point in stating that the smaller the series the better the mortality by both conservative and radical treatment. He cites extremely interesting data in support of this view.

Statistical figures quoted from all parts of the world indicate that the mortality of eclampsia, irrespective of the present mode of conservative therapy, ranges from 10 to 20 per cent, although Stronganoff reports a series of 200 cases treated by the method herewith outlined, with a gross death rate of only 2.6 per cent. He also refers to 3,302 collected cases treated by his method, by other accounchers, with a mortality percentage of 10.4.

In the Rotunda Hospital, Dublin, during the 24-year period, from 1903 to 1927, inclusive, there were 46,236 deliveries. Two hundred and sixty-nine of the patients were treated for eclampsia, with a gross mortality of 10.78 per cent.

Before taking up the surgical treatment, some reference should be made to future pregnancy in toxemic patients. This is of special importance from the aspect of ultimate prognosis.

It was formerly assumed that an individual suffering with an attack of eclampsia in one pregnancy was rendered more or less immune and not likely to suffer similarly in the next or in subsequent gestation. It was also erroneously taught that in most instances patients recovered without the disease leaving some evidence of its fury. This conception of the matter is now looked upon as fallacious.

Zangemeister, in a study of 238 cases, found a recurrent pre-eclampsia in 42 per cent and true convulsive intoxication in 18 per cent.

With respect to permanent organic damage following eclampsia, it does not seem logical to assume that it should differ in this regard from any other form of grave disease, and from the information now at hand, one can assert, as Peckham and others have pointed out, that permanent renal impairment is found in a surprisingly large percentage of former victims of the disease.

G. F. Gibberd, also, supports this view and he believes that 10 per cent of eclampsia patients develop frank nephritis and that 50 per cent will portray signs of renal incompetency in future pregnancies. In other words, he takes the stand that only 40 per cent of the patients will recover completely and remain free from kidney complications in later pregnancies.

For my part, I should be exceedingly loath to have anyone dear to me run the risk of the catastrophe in bringing a second baby into the world.

Now as to Surgical Treatment—In considering the third division, or the surgical treatment of grave toxemia, I have at the outset two main utterances to make. First, that operative interference is seldom indicated and, second, that conservative medical therapy is so vastly superior that one is led to wonder why radical treatment is considered at all.

In no other condition accompanied by a train of such terrifying and ominous symptoms, as one observes in eclampsia, would a surgeon even be tempted to institute major abdominal surgery.

I know there is still a small body of obstetricians advocating and practicing Ceasarean Section in the convulsive type of toxemia.

Many years ago, I was, also, a member of that group and it was a long time before I was brought to realize that the wrong track was being followed. It took considerable courage to change my course, but after crossing the Rubicon, so to speak, I found the ground so much firmer on the other side that under no circumstances could I be persuaded to retrace my steps.

Evidence accumulating during the past few years has demonstrated quite conclusively that rapid surgical delivery, save in patients with the cervix completely dilated, combined with the presenting part emerging therefrom, is rarely necessary.

The contrast between the two methods is so overwhelmingly on the side of conservatism that they are no longer susceptible of controversy.

This is so extraordinarily impressive that it is difficult to conceive that there are still in Europe, as well as in America—though an ever dwindling minority—a certain number of obstetricians who still cling to hasty surgical extraction.

Ceasarean Section, under the occurrence of the most favorable circumstances, carries a mortality in eclampsia of from 30 to 40 per cent.

Bourne reports a death rate of 32 per cent and Welz, in a review of a large series of cases, registers a maternal mortality of 42.7 per cent. In other words, while ten to twenty per cent of the patients may die after simple conservative treatment, thirty to forty per cent will surely succumb following radical means.

All statistical figures would seem to exclude Ceasarean Section as a therapeutic measure in eclampsia. Accouchement force, now fortunately largely abandoned, is the most deadly radical procedure of all and is accompanied by a mortality so high as to render it positively prohibitive.

The death rate following this form of rapid delivery is recorded as in excess of 52 per cent. All in all, one may say that the radical treatment of grave or convulsive toxemia is accompanied by a mortality so high as to render its application unjustifiable and, as expressed by one eminent writer, one may now look upon this method as dead.

In conclusion, I will say in summarizing: First, that the toxemias of pregnancy are the most frequent, as well as the most serious, complication of pregnancy; Second, that next to septicemia, toxemia is the most frequent cause of maternal morbidity and mortality; Third, that etiologically the disorder remains the most obscure problem in obstetric pathology; Fourth, that the new classification is the most outstanding contribution to the subject of modern times; Fifth, that only with the fundamental cause of toxemia definitely known will its therapy pass from an empiric to a specific phase; Sixth, that of the manifold measures thus far advocated and employed, prophylaxis is the most dependable of all; Seventh, that the best form of medical treatment is that devised by Stroganoff, or some modification; Eighth, that the radical treatment of eclampsia, Ceasarean Section especially, is accompanied by a mortality of such proportions as to hardly justify the means; and Ninth, that the speaker counts it a rare privilege and honor to present the subject of pregnancy intoxication before the Medical Society of the State of North Carolina, and particularly, from the standpoint of the man in general practice, upon whom the great bulk of maternity practice still rests. (Prolonged applause.)

The Chairman: We are one and all indebted to Dr. Bland for this fine address. The hour of one o'clock having arrived, in which there are five luncheons held in different places, I will ask Dr. Gibbs if he will present his paper at the opening of the next General Session in this Hall at eight o'clock tonight.

The session stands adjourned.

SECOND GENERAL SESSION

LECTURE ROOM "C"

TUESDAY, APRIL 21, 1931, 8 O'CLOCK P. M.

DR. C. M. VAN POOLE, Chairman Obituary Committee, Presiding

THE CHAIRMAN: Dr. Wallace Gibbs has a paper that was left over from the morning session. Dr. Gibbs.

PYORRHEA AS A FOCUS OF INFECTION AND A FEW SUGGESTIONS FOR ITS EARLY RECOGNITION BY THE PHYSICIAN

WALLACE GIBBS, D.D.S., Charlotte

Mr. President, Members of North Carolina Medical Society, Visitors:

I am honored, and dentistry is honored, when I am asked to address so distinguished a group as the North Carolina Medical Society. Had I have been asked to discuss, or even to fully appreciate, any subject strictly within the realm of medicine, I should feel hopelessly incompetent to do so. But, inasmuch as my subject deals with dentistry, or more properly, a specialty of dentistry, perhaps I may be able to give a few thoughts and offer a few suggestions that may prove helpful.

For the wonderful progress that has been made by the medical profession, not only in North Carolina, but throughout the world, one can have but the highest praise. May I not say, likewise, for the progress of dentistry, particularly during the past dozen years or so, one can have but the greatest admiration?

Dentistry, until recent years, was considered little more than a highly specialized trade. It is true that we studied along with the medical student many of the basic subjects of medicine—but very few of us used the knowledge gained—our time being almost entirely occupied after graduation with mechanical thoughts. We were wonderfully proud of our achievements and the service we were rendering to humanity. For sheer ingenuity I have yet to see the equal of the old-fashioned dentist. And inasmuch as we shall always need dental mechanics in our practices, we cannot praise too highly our predecessors who gave us the fundamentals of dental mechanics. We were, however, rudely awakened from our mechanical complacency in the early part of the present century by a member of your profession, Sir William Hunter, in his denunciation of many of our appliances from a health standpoint. This, and later the challenge of Mayo and others, not only caused dentistry to reconstruct her idea of dental appliances, but at the same time caused us to consider the health of the individual as a whole—not merely the teeth as such. Thus, dentistry had the dual problem of caring for the teeth and considering their relation to the health of the individual. This was a large order for a profession whose thoughts had for generations been largely along mechanical lines. The change could not be effected over night. It meant the

dentist would have to become better acquainted with pathology, physiology, bacteriology, the X-ray and many other subjects. Dentistry has faithfully endeavored to meet this obligation. But, we did not have the background nor the training that you of the medical profession have had. We must, therefore, turn to the only source from which we could get this information—the medical profession. And we wish here to express our deep appreciation for the wonderful help and encouragement that you have given us, individually and collectively. We must continue to depend upon you, and we feel encouraged to believe that you will aid us in the future as you have in the past.

The object of dentistry in the past was to preserve the teeth. The object of dentistry today is to preserve the teeth and their supporting structures in a state of health—in order that they may be an asset rather than a liability to the patients health. It is well for us to keep in mind that our duty is to preserve the teeth. It is a simple matter to order a tooth removed and usually it is a simple matter to remove it. This is one way of getting rid of infection—perhaps. When it is necessary I should be the last to oppose it, for the health of the patient is worth more than a tooth, or for that matter, than all of the teeth. However, there are many teeth and their supporting structures that can be effectively rid of infection without the loss of the tooth.

Generally speaking, we are confronted with two conditions in the mouth. One, which attacks the tooth itself, and is called dental caries. The other, which attacks the supporting tissues of the tooth, and is called Pyorrhea. Each is a decay or degeneration of tissues. And, although there are many theories and individual opinions, the etiology of either condition has never been established. Our predecessors assumed that the first, which they called dental caries, was curable, or at least amenable to treatment, and therefore devoted their time almost exclusively to it. The other condition, which they called pyorrhea, for lack of better nomenclature, they considered incurable, and condemned it as such. Hence pyorrhea has been the despair of the dental profession. It has been called the incurable, and the disease of mystery. This has been largely true because dentists have considered pyorrhea as one disease, or condition, covering about all the benign lesions of the supporting tissues of the teeth—and further, because dentists have looked for a specific cause and a specific cure. For years we looked for specific infection, or a constant strain of organisms. Failing in this, many still considered it a primary infection. So long as we thought along such lines we made little or no progress. Pyorrhea is an infection, it is true, but the primary lesion is brought on by other causes—infection being secondary. Having arrived at this conclusion several years ago, and further having observed in many cases referred to me as pyorrhea that there were a great variety of symptoms present —that many cases presented symptoms entirely absent in others—I came to the conclusion that we were treating a variety of cases as a single condition, and that there must be different causes for many of the cases presented. I, therefore, made a chart enumerating these lesions, and from this chart a diagnosis sheet, to which I have

since adherred. I make an individual examination of each case before attempting its treatment. Thus I have found that many conditions of the mouth are of local origin; others of systemic origin; while others are apparently influenced by both factors. For example, local filth in the mouth, such as calcareous deposits; food debris, poorly constructed dental appliances, and other irritants undoubtedly cause a lowered resistance to the part with a breaking down of tissues—and the subsequent invasion of bacteria. Likewise diabetes, anemia, syphylis, and many other systemic diseases are manifested in the mouth, and tend to break down the tissues. We might also mention various drugs, poison, individual habits, pregnancy, diet, metabolism and heredity. Thus, while we may eliminate the infection, as we are doing and as we have done in many instances in the past, the condition will often return—to the despair of both dentist and patient. Hence, pyorrhea as the disease of mystery. May I not say that the mystery lies in our lack of diagnosis—or more fundementally, in our lack of the proper knowledge of those subjects that would enable us to make a correct diagnosis. Pyorrhea becomes curable, and no longer a disease of mystery, when dentists have sufficient understanding of those necessary factors which govern vitality of tissues, and apply it. It is well, and it is necessary, to eliminate infection in pyorrhea as elsewhere—and treatment by various means will do this; but, permanency of results depends upon eliminating the cause.

Pyorrhea is a focus of infection of the mouth, and, contrary to general opinion, I feel that it is the most prevalent and potent of mouth infections. It is a disease of filth and a respector of no person. It is found in mouths in which the most scrupulous hygiene is maintained. For we must remember that the lesion is beneath the gum line, and therefore not accessible to any known means of cleansing. The area of tissue involvement is greater than that of any other dental infection—or of all dental infections combined. I have ascertained by actual measurement of the inner circumference of the sockets of the teeth that the area of tissue possible of involvement is 20,000 sq. mm, as compared with 100 sq. mm in the infection of the average apical or abscessed tooth. And when we consider that the outer circumference of the sockets was not measured, nor that of the soft tissues involved, the amount of tissue possible of involvement in a pyorrhetic infection is probably several times as great as the figure given. There are approximately sixty roots in a full set of teeth, and each root has four surfaces—each capable of a separate pocket, making it possible to have 240 pockets in a case of pyorrhea. Each pocket is capable of a drop, or one minum, of pus. I recently made an examination with a member of your profession of a young lady, who had, as near as we could ascertain, a pocket on each surface of each tooth—and each pocket revealed an exudate. This was at 9 a.m. At 5 p.m. we were able to get apparently the same amount of exudate from the pockets. Does this mean that the discharge was replacing itself every eight hours? If so, would there not be approximately 720 minums of pus daily from such a case? How much of this is being absorbed we do

not know—that much of it must be absorbed is only a matter of common sense. It has been said that the abscessed tooth does not have drainage and that the pyorrhetic tooth does. This is not always true. There are abscessed teeth that do have external drainage, and there are pyorrhetic teeth that do not have drainage. Consider hyperemia, calcareous deposits, and other obstructions in pyorrhetic pockets. There are pockets present, and often overlooked, in which it is difficult to pass a probe. Consider also the laws of gravity in the lower jaw. And I do not feel that it is absolutely necessary that we have infection under pressure for absorption. This is not according to the laws of physics. Again many areas of infection in the apical region of a tooth are encapsulated.

In support of the above theory of pyorrhea as a focus of infection I should like to give a few cases clinically from my files:

Case A. Male, age 35. 1920. Patient on crutches; joints apparently stiff; complexion decidedly sallow; no appetite; nervous; poor sleeper; weight 103 lbs. Pyorrhea with so great a loss of bone that treatment was out of the question. There were 32 teeth; no abscesses; no decay; no impactions. All teeth and all necrotic tissue thoroughly removed under general anesthesia. Patient reported a year later for artificial teeth. Complained of no stiffness in joints; did not use crutches; color normal; appetite normal; sleeping soundly; weight 164 lbs. No other treatment given.

Case B. Female, age 32. Nervous; sallow; poor sleeper; very poor appetite; weight 88 lbs. January, 1931. Operated surgically on pyorrhetic pockets. April 1, 1931, weight 101 lbs. Very little evidence of nervousness; appetite good; complexion very much improved; sleeping well. No other treatment.

Case C. Female, age 20, with exactly the same symptoms of case B. February 3, 1931. Weight 92 lbs. Treated by subgingival curettage. All symptoms have practically disappeared. Weight at present 99 lbs. No other treatment.

Case D. Male, 30 years of age. Complained of pain in back and of continued soreness in muscles in back of neck. Had tried various treatments with no improvement. Operated on pyorrhetic lesions surgically (radical) December 7, 1930. Patient in my office March 28, 1931. Reported all symptoms disappeared and no return in two months. A gain of 6 lbs. in weight. No other treatment.

Case E. Female, age 41; sallow; dyspeptic; complaining of nausea, indigestion and pains around heart—especially after eating. Had been treated for years with no relief. Pyorrhea treated from September, 1930, to December, 1930, by subgingival curretage, massage and local stimulants. Pyorrhetic lesions completely healed; other symptoms disappeared and patient noticeably increased in weight. No other treatment to April 2, 1931.

The above cases were taken from my files and support, to my mind, the theory of pyorrhea as a focus of infection. I could give many other case reports from my files, covering a period of the past five years, during which time I have devoted myself exclusively to this phase of dentistry.

There are two essentials in eliminating pyorrhetic infection. The first is correct diagnosis, and the second is correct treatment. All of us fail at times in both essentials. This is not, however, an argument against pyorrhea as a focus of infection. Further, we may correctly diagnose and treat a case and the general condition remain unchanged. There may be contributing or secondary foci. Again, if we leave a portion of the infection after treatment, or extraction of the teeth, the condition would not clear up. And X-rays reveal, in residual infection, all too often that we do just that. I would like to call attention just here to the fallacy that the extraction of a pyorrhetic tooth always cures the condition. To extract a tooth in pyorrhea only means that we have established better drainage, the seat of the trouble being in the bone socket and adjacent soft tissues. This improved drainage does sometimes eliminate—but not always. The proper procedure is to thoroughly remove all the diseased area by curretage after extraction—and this does not always effect a cure. Because the primary cause of the breaking down of the tissues has not necessarily been removed. In support of these statements, I offer, first, the fact that in cases where pyorrhea was undoubtedly the cause of systemic disturbances, the complete removal of all pyorrhetic teeth and in some instances followed by thorough curretage, the trouble persists. Again, many wearers of artificial teeth—or dentures—have to have these dentures remade time after time, due to the absorption of the alveolar ridge. The denture is dependent upon perfect adaptation to the ridge, and the appliance does not change. Therefore, a looseness can mean but one thing—the absorption of the alveolar ridge. I should like to quote from an English writer in a recent issue of one of our journals: "Pyorrhea has become appallingly common and is effecting quite young persons. I have seen a girl of seventeen with nine otherwise perfect teeth badly involved. Her dentist had advised extraction, because in his opinion pyorrhea was incurable. This displayed an ignorance of fundamental facts. The teeth were being sacrificed when they had nothing to do with the trouble, which was in the alveolus." Again from the same writer: " . . . Unfortunately such absorptions will continue and it will be impossible to make a satisfactory denture. I have had a case, which, after extraction to supposedly cure pyorrhea, required the denture remodelling twelve times in a few years." These and many other cases known to all dentists should be convincing evidence that extraction is not the remedy for pyorrhea. If we wish to remove the infection surgically, surely this can be done as well, or better, without the loss of the tooth.

The earliest recognition of pyorrhea is only possible by a full-mouth X-ray—all the teeth and their supporting structures. No examination in dentistry is complete without this. Those who have followed this part of a dental examination, will, I am sure, support this statement. Those who have not, are simply not aware of its advantages. The microscope is also a valuable aid—especially in such diseases as vincents. I assume, of course, in the use of these

two aids to diagnosis that one is not only familiar with the technique, but is also able to correctly interpret the findings.

A few simple observations by the physician would, in most cases, be sufficient in detecting the more pronounced cases of pyorrhea, and aid in sending them to the dentist for confirmation. (1) The color of the gum should be pink—any discoloration is suspicious. (2) The texture of the gum should be firm and hard—any softness or sponginess is indicative. (3) The crest of the gum should be at the enamel of the tooth, or at the neck or constricted portion—any recession is suspicious. (4) Gums that bleed upon pressure are suspicious—and this should be ascertained by pressure and not by statement of patient. (5) Any exudate by pressure on the gums—and often you will not get this except by persistent and hard pressure, well directed. (6) Accumulation of calcium or food debris around or between the teeth—this is almost conclusive evidence. (7) Teeth out of line or malopposed. (8) Loose teeth. (9) Pockets. A tooth has a fibrous attachment at the neck, or more properly about 1 mm below, therefore, a probe passed along the root will, in most cases, reveal the pocket. The foregoing routine examination by physicians will detect the majority of the cases of pyorrhea—and the time required should be about ten minutes. But a casual glance in this mouth will not do as an examination for pyorrhea. While the evidence from the above examination is always positive, absence of all of the above diagnostic symptoms does not argue that the case is negative. The X-ray alone will give us the final information —in case all other information is negative.

In conclusion, may I not say that while medicine and dentistry are separate professions, and neither has any desire to infringe upon the other, yet, in the light of present knowledge, is not close co-operation between the two most desirable in the best interests of the patient? The public looks to you for care and advice of their bodies, and upon your advice much depends. Yours is a great responsibility. We are dentists and our duty is the preservation of the teeth and their supporting structures in a state of health. If conditions in our field are a source of trouble or danger to your work, will you not permit us to help you? And if so, will you not aid us in the early detection of these maladies—especially those that have been considered incurable—in order that we may get them before they are incurable? And will you not let us help to eliminate the infection without the necessity of the loss of the tooth—when this is possible? This means a routine adequate examination of the mouth by the physician.

The Chairman: Is there any discussion?

Dr. C. R. Young: I have stood with doctors, of course, that extracting the teeth did not cure pyorrhea, and I would like to know then, after extraction, how would you know whether or not your patient was cured?

The Chairman: Is there any further discussion?

Dr. H. E. Storey, Charlotte: Mr. Chairman, I consider this a privilege. In the first place, my specialty is rather different from

that of Dr. Gibbs. I deal with pathology in the mouth, I do minor oral surgery, and I remove teeth. It is my privilege very often to refer cases to Dr. Gibbs for treatment. They are referred to me because the teeth are loose with pyorrhea or there is a definite pyorrhea infection. I don't suppose it is my privilege, but I am going to take this opportunity to answer the doctor who spoke before me with regard to the curing of pyorrhetic lesions in the mouth by the removal of teeth.

Pyorrhea is not a gum disease. Some of you know that, and I fear some of you do not realize it. It is really, as I see it, a mild osteitis. Free drainage is a thing we are taught in surgery to relieve osteitis or osteomyelitis. With the removal of the tooth we establish free drainage. If a man can establish that free drainage, and if he does not resort to the astringent which is advocated in our national journal—an astringent, in the first place, is a dangerous thing to use, with the hope of curing a pyorrhetic condition. You get a degeneration. At first you stop the bleeding of the gums. That doesn't cure pyorrhea. That doesn't help your patient much, mentally only, might I say; but if you have an excretion of pus and you can find it within a pyorrhea pocket, I am sure you haven't helped very much.

I am also very much impressed with the idea that pyorrhea is just as serious, if not more so, than many of the abscessed teeth which we so readily advise our patients to have removed. I feel that when I find a person suffering with pyorrhea lesion, and I can truthfully state from the bottom of my heart that I can refer them to a man who can take care of that lesion and remove the infection permanently, or as permanent as anything we can do with surgery, of course they can again have a pyorrhea lesion, but that doesn't mean that the first man has not cured the condition—I feel very definitely that I have rendered a much larger service to that patient if I referred him to a man who can remove the potential factor with regard to their health, and we might say their infection, than I do when I have removed their teeth, and they then have to have something artificial. There isn't anything artificial that is quite equal to the original.

The Chairman: Is there any other discussion? Then I will ask Dr. Gibbs to close the discussion.

Dr. Gibbs: In my paper I stated that dentists in making plates or artificial dentures which are dependent upon perfect adaptation to the ridge for retention, that we have to make them over so many times that we know often that the mere extraction of teeth doesn't cure the condition, because absorption goes on there.

Also we dentists in the last few years have made it practically routine to X-ray the mouth; if the patient doesn't want it, I do it anyway. And in reading the films in every case from time to time, we have a chance to watch the process there, and we know that an area that is found necrotic by the X-ray, and then opened up surgically and removed, shows that the extraction didn't cure the lesion.

On Friday of last week I had a very good dental friend, a general practitioner, who sent me a case and a man asked me to look over the back of his mouth, as he was at that time getting drainage from some-

where. The gums had healed where three teeth had been taken out, and so we X-rayed him. We found on the gum that pyorrhea was still present. The mere removal of the teeth doesn't always cure the lesion.

Dr. Storey: There is one thing I would like to ask: do you consider pyorrhea curable?

Dr. Gibbs: Yes; and I would like for any man to give me a reason why it isn't. It is curable.

I feel privileged to appear before the Medical Society. Thank you, sir.

The Chairman: We have departed from the regular program for just a little at this time, and we will now proceed to the important subject of obituaries, and I will ask my distinguished friend, Dr. McCall of Asheville, to deliver the principal address.

Dr. A. C. McCall: Mr. Chairman, just why I was asked to make this address I hardly know, for I know so little about it. So I will confine my remarks to a few general terms about the medical profession, and I will leave the eulogies of the different members who have passed on, to others as the individual names are called.

GENERAL MEMORIAL ADDRESS

Alvin Clay McCall, M.D., Asheville

Mr. Chairman, Ladies, and Gentlemen: We are gathered in this hall tonight in a different spirit from other gatherings here. Scientific (including different specialties in medicine) socialistic and political have been put aside to meet, in reverence as fellow creatures to show respect and honor to our fellow members of the medical profession who are absent—our deceased brothers. It is fitting that we do this—pause in our deliberations to give thought to those whom we miss in our Council. It is true their chairs are filled but their places are vacant. Each had his individual place, which has not been filled.

It seems to me each year the grim reaper's toll is greater; not content with the aged, retired practitioner, but exacting the active, and those who are sharing the burdens placed upon this body of men to preserve and relieve distress.

Let us consider for a moment our loss. They were men of whom we should be proud, as the list will show distinguished in this State, nationally and internationally. They labored, but not in vain, in order that our profession should not be found wanting in relieving the medical requirements placed upon us, but to improve and push forward means for the betterment of the Society and progress in the State. Many of them were outstanding figures in State politics, some I knew intimately, of whom I would like to say a few words of praise and add my personal appreciation for their splendid character and ability, but time will not permit. I am sure this evening some one will express more eloquently than I, the gift to this Society their lives have been. I cannot recall a single year in which our Society has lost more outstanding men than during the past year.

When I graduated in medicine, enthusiastic with the idea of having completed the college curriculum and been licensed to practice medicine by the North Carolina Board—some of my examiners I now see in the audience, I was at times prone to question the methods of our older members. This I now realize was the enthusiasm of youth. They were our godfathers, having been severely tried, but having found the true spirit of service, with malice toward no one and exemplary of charity to all. Let us not hold grievances toward our distinguished fellows, who have passed, but ever remember the Christian spirit of the Great Teacher.

The profession has been criticized, but through ignorance or misinformation, for lack of attendance at religious gatherings. To this I ask—what group of men are more tolerant of the freedom of thought permitted each individual, to assert his God-given right to freedom in religious and political right, the clergy not excepted. The doctor is taken into the individual's confidence; nay, the sanctity of the home—a trust he holds inviolate. There are no reforms instituted but that you will find the physician in the forefront. He is the one person, who uses his energy and skill to improve conditions preventing diseases, shortening illness, to the detriment of financial return; thanks to the efficient health department and its able staff. I am reminded of one of my preceptors (a grand old man) in whose buggy I rode as a boy. He told me not to enter the profession with the idea of luxury or being a man of note, but rather to search for the knowledge of the body and sacrifice self to the art of medicine, relinquishing all social ideas—a servant to the Glory of God.

We have a great inheritance. The noblest of the professions. Christ accepted "Luke" the beloved physician, as one of His desciples, whose influence and teachings to the world are immeasurable.

Socrates—Mythology (The exact date we do not know.)

Hipprocrates—(460-370 B.C.) is called the Father of Medicine.

Aristolle the Anatomist—Ascelapidus and Galleo Caducus, who gave us our emblem of medicine the Caducus in 3rd century B.C.

The Anatomist Galen (130 A.D.) Paracelsus and Avieimia (980) brought us to the 15th century.

Pare (1510) the Anatomist. *Faby* (1560) the German surgeon.

Harvey (1578) Epochial announcement on circulation of the blood, with *Sydenham* (1624) the art of medicine—covering the period up until the 17th century, which is remarkable for the establishment of a new era, and is adorned with such illustrious names as:

Will and John Hunter (1728-1793) Anatomy. Surgery, Aneurism and Syphilis.

Jacqumous Daviel (1696-1763) Ophthalmology, whose technique is largely in vogue in the present day.

Bichart (1770-1803) Anatomy and Surgery.

Jenner (1749) the foremost Bacteriologist and father of present day vaccination in smallpox.

Graves (1796-1850) Studies in goitre.

Bright and Addison (1793-1860) Pioneers in kidney pathology.

Beaumont (1785-1855) Observation upon the stomach.

Virchow (1821) and *Pasteur* (1822) pathology and bacteriology.

Morton (1815) *Crawford Long* (1815) Discovery of ether anesthesia, with

Simpson (1814) using chloroform.

Lister (1827) Revolutionizing surgery as a bacteriologist.

Jonothan Hutchison (1828) Masterly treatise on syphilis.

The Investigator Koch (1843-1910) who announced to the world the discovery of the germ of tuberculosis.

Ehrlich (1854-1915) Treatment of syphilis.

Walter Reed and Gorgas (1854) Work in yellow fever.

The great and renowned William Osler, the physician.

To this list may be added many other names, who contributed their part in bringing medicine to our present day efficiency.

Like war, medicine has its heroes and how full of supreme sacrifices, triumphs, heartaches and laughs their story is. The knowledge of disease possessed by ancient Greeks, and their treatment evince an intelligence on a par with our own. Surgery was developed in Rome before Galen's time.

This Society should place in its archives a biographical sketch of the physicians in this State, who erected their own memorial through their accomplishments in medicine.

"There are men and classes of men that stand above the common herd, the soldier, the sailor, the shepherd not infrequently, the artist rarely, rarer still the clergyman, the physician almost as a rule. He is the flower of our civilization and when that state of man is done with, only to be marvelled at in history he will be thought to have shared but little in the defects of the period and to have most notably exhibited the virtues of the race. Generosity he has, such as is possible only to those who practice an art and never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, herculean cheerfulness and courage. So it is; that he brings air and cheer into the sick room and often enough, though not so often as he desires, brings healing." —(Robert Louis Stevenson.)

COMMITTEE ON NECROLOGY

Dr. Van Poole: I think it is entirely right that at the annual meeting of the Medical Society of the State of North Carolina we should stop long enough to pay respects to the faithful ones who have fallen by the way during the year. That is the purpose of this meeting.

We want to ask a full and free expression by any member present regarding any friends. First we call the roll.

NORTH CAROLINA DOCTORS WHO HAVE DIED DURING THE YEAR

*Dr. Alexander, Emery G. ..... Charlotte and Philadelphia
*Dr. Allen, James ..... Wendell
Dr. Allen, Rufus L., Hon. ..... Waynesville

*Dr. Baynes, R. S. ..... Roxboro
*Dr. Blair, John M. ..... Monroe
*Dr. Bolles, Chas. P. ..... Wilmington
Dr. Briggs, H. H. ..... Asheville
*Dr. Briggs, James C. ..... Selma
*Dr. Cauble, Harold ..... Kannapolis
*Dr. Clark, H. Irwin ..... Scotland Neck
*Dr. Coiner, N. L. ..... Durham
*Dr. Coleman, J. I. ..... Durham
Dr. Collins, George ..... Raleigh and Charlotte
*Dr. Cooper, W. A., Jr. ..... Raleigh
Dr. Duncan, J. E. ..... North Wilkesboro
Dr. Evans, W. E. ..... Rowland
*Dr. Ferebee, Edwin B. ..... Belcross
Dr. Gill, R. J. ..... Henderson
*Dr. Gordon, James Rufus ..... Jamestown
*Dr. Griffin, T. A. ..... Morganton
*Dr. Griffith, E. J. ..... Edenton
Dr. Hall, Julius Clegg ..... Albemarle
Dr. Herring, B. S. ..... Wilson
*Dr. Holland, George C. ..... Dallas
*Dr. Hollingsworth, Edward ..... Mt. Airy
*Dr. Holloway, Oscar Wood ..... Durham
*Dr. Johnson, Hardy ..... Reidsville
Dr. Lackey, Frank ..... Fallston
Dr. Laughinghouse, Chas. O'H. (Hon.) ..... Raleigh and Greenville
Dr. Lawrence, Chas. S. ..... Winston-Salem
Dr. MacRae, John D. ..... Asheville
Dr. Maxwell, H. B. ..... Whiteville
*Dr. Maynard, J. D. ..... Wadesboro
*Dr. McIver, A. C. ..... Maxton
*Dr. Miller, Col. James E. ..... Oteen
Dr. Misenheimer, C. A. (Hon.) ..... Charlotte
Dr. Montgomery, John Christian (Hon.) ..... Charlotte
Dr. Moore, W. J. ..... Asheboro
Dr. Morris, Geo. D. ..... Goldsboro
*Dr. Nicholson, J. P. ..... East Bend
Dr. Nicholson, Sam T. (Hon.) ..... Washington
Dr. Patterson, John A. ..... Concord
*Dr. Pearce, B. F. ..... Princeton
*Dr. Pearce, R. S. ..... Brevard
*Dr. Perkins, D. R. ..... Marshville
*Dr. Pinnix, J. A. ..... Corbett
*Dr. Powell, H. H. ..... Stantonsburg
Dr. Proffitt, Thomas J. ..... Elk Park
*Dr. Rakestraw, Chauncey M. ..... Red Springs
Dr. Ring, Joseph ..... Elkin
Dr. Royster, Wisconsin Illinois (Hon.) ..... Raleigh
Dr. Schaub, O. P. ..... Winston-Salem

*Dr. Seberell, J. E. ..... Charlotte
Dr. Smith, Paul ..... Pikeville
*Dr. Tate, W. N. ..... Mebane
Dr. Thompson, Cyrus ..... Jacksonville
*Dr. Thrailkill, J. C. ..... Seaforth
Dr. Walker, Walter E. ..... Burlington
Dr. Ward, Wm. H. (Hon.) ..... Plymouth
Dr. Warren, William E. ..... Williamston
*Dr. Weyher, Victor Emanuel ..... Kinston
Dr. Whitehurst, E. B. ..... Beaufort
*Dr. Williams, B. B. ..... Greensboro
*Dr. Williams, Francis M. ..... Wilmington
*Dr. Williams, Lt. Com. Lewis Hicks ..... Faison
Total 66

*Not members Medical Society of the State of North Carolina.

DR. EMORY G. ALEXANDER

Dr. Emory G. Alexander, son-in-law of Dr. John B. Deaver, widely known surgeon, died at Philadelphia, Pa., on August 29, 1930.

DR. JAMES ALLEN

Dr. James Allen, prominent retired physician, died at his home in Wendell, N. C., July 20, 1930.

Dr. Allen was born in Moore County 74 years ago, and gave to the community of Wendell more than 20 years of active service. For the past nine years he had been confined to his home with a complication of diseases, and death was not unexpected.

DR. RUFUS L. ALLEN

Dr. Rufus L. Allen, one of the oldest practicing physicians of Waynesville, died there January 8, 1931.

He was a director of the Equitable Life Assurance Company of New York. He had represented North Carolina at the Pan American Medical Congress. His father and grandfather were prominent physicians. He was an Honorary Fellow of this Society.

DR. R. L. ALLEN

Dr. John R. McCracken, Waynesville:

Dr. Rufus Leonidas Allen was born at Pigeon River, Haywood County, N. C., July 12, 1864, and died at his home in Waynesville, January 8, 1931.

Dr. Allen received his early education under the tutelage of his father, who was a surgeon in the Confederate Army. Later he studied medicine at Vanderbilt University, and was graduated from the medical school of the University of Maryland in 1885.

Beginning the practice of medicine with his father, at the early age of nineteen, Dr. Allen spent the remaining forty-six years of his

life in general practice at Waynesville, where he acquired a practice that carried him, not only to all parts of Haywood County, but over a large part of Jackson as well.

Dr. Allen was a Past President of the Haywood County Medical Society, an Honorary Fellow of the North Carolina Medical Society, and a Fellow of the American Medical Association. He was an enthusiastic advocate of organized medicine, and was ever mindful of the ethics of his profession. He was often referred to as a "Doctor of the Old School," but he was always ready to investigate, and when convinced, to accept any new teaching that might be of help to him in relieving his patients.

Truly this was a life devoted to hard work and service, and when his services were needed, he knew no distinction between rich and poor. As a citizen, he was patriotic and progressive; as a friend, loyal and obliging; as a husband, kind, considerate and devoted, and as a physician, attentive and sympathetic, always at the call of suffering humanity. The throng that assembled from all parts of his native county to attend the funeral service of this beloved physician, was a fitting tribute to a great man, a great physician, and a great life.

Dr. Allen is survived by his wife, the former Miss Marian Wilton of Washington, D. C.

DR. R. S. BAYNES

Dr. R. S. Baynes, 76 years of age, died at his home in Gordonton, N. C., on April 10, 1931.

Dr. Baynes died after serious illness of three days, but he had been in failing health for some time. He is survived by a number of sons and daughters, Dr. R. B. Baynes of Durham, being one of them. He was for many years a member of Salem Methodist Church. He was twice married.

DR. JOHN M. BLAIR

Dr. John M. Blair died at his home in Monroe, N. C., September 10, 1930. Dr. Blair was a graduate of the University of Louisville of the class of 1887, and had spent many years in the medical service, being sixty-six years old when he died.

DR. CHARLES PATTON BOLLES

Dr. C. P. Bolles, a practicing physician and of late years head of an investment brokerage company, died at his home in Wilmington, November 28, 1930.

He came of a prominent Wilmington family and is survived by his widow, two sons and two daughters.

DR. H. H. BRIGGS

Dr. H. H. Briggs, noted eye, ear, nose and throat specialist of Asheville, died of a heart attack February 6, 1931, while at sea aboard the steamer *Duchess of Bedford.*

Dr. Briggs was returning from a cruise to the Caribbean sea. Although Dr. Briggs had done most of his work in Asheville, N. C., he had a national reputation in his specialty.

He was always intensely interested in the welfare of Asheville, took an active interest in civic affairs, and contributed prominently to the development of the city. He was a faithful member of this Society and added interest and lustre to many of its programs.

DR. HENRY HARRISON BRIGGS

By

BERNARD R. SMITH, M.D.

Dr. Henry Harrison Briggs was born at Flag Pond, Tennessee, near the North Carolina line, February 20, 1871. Had he lived three weeks longer, he would have celebrated his 60th anniversary. His early education was very meagre, his mother being his first instructor. Fired by an unusual inspiration to gain an education, he entered Tusculum College, a junior college, located in Greenville, Tennessee, working his way through the institution and graduating at the head of his class. It was there he became proficient in mathmatics, receiving four gold medals in this branch of study, and seriously thought of taking up civil engineering as his life's work. In fact, during some of his summer vacations he spent his time surveying land, and thereby added materially to his bank account. Leaving Tusculum College after graduation, he entered the academic department of Yale University. After one year of academic work, he then decided to study medicine. Returning to Yale, he spent four years in the medical department, graduating in 1897.

For the next two years he divided his time between an office he maintained in New Haven and the Manhattan Eye, Ear, Nose and Throat Hospital in New York City. He came to Asheville in 1900, opening up his office in the Adelaide Building, on the east side of Haywood Street, near the present site of Denton's Department Store.

In 1901 he married Miss Lillian Briggs. To them three children were born, the oldest of whom is Dr. Henry Harrison Briggs, Jr., who is now serving his internship in Ford Hospital of Detroit, and it was a great source of satisfaction to Dr. Briggs to know that his eldest son was following in his footsteps in his particular line of medical practice.

In 1902 Dr. Briggs purchased the old Penland home, which occupied that portion of Haywood Street where the George Vanderbilt Hotel now stands. In this building he had both home and offices for a number of years.

Of the members of the Buncombe County Medical Society at that time, only the following members are still living, namely, C. P. Ambler, W. C. Brownson, Thos. P. Cheeseborough, Chas. S. Jordan, Carl V. Reynolds, J. T. and D. E. Sevier, M. L. Stevens, G. S. Tennent, H. B. Weaver, and L. B. McBrayer.

Dr. Briggs was especially free from the petty jealousies so common among many members of the medical profession. Never did I hear him say aught against any other physician during the long number of years of our acquaintanceship.

Coming to Asheville myself in the summer of 1902, I, too, wanted to study medicine, but did not have the money to finance the proposition. Hearing that Dr. Briggs "made the grade," I went to see him to get the formula. Never will I forget that July afternoon, when he gave me an interview of about two hours. I soon found the socalled formula he held was embodied in four letters of the alphabet—W-O-R-K. He gave me some good advice and inspiration. In that two hours' conversation he put into me a great deal of enthusiasm. From that time on, until the day of his death, he was my good friend and counsellor. He mapped out for me from year to year my literary course at college, and later on, during my summer vacations while in medical school, would help me secure positions, two of which were spent as an assistant to Dr. C. E. Cotton in his sanitarium at Black Mountain, and when I located in Asheville to practice, he was my close friend and benefactor. He referred my first patients to me, and I pause here to acknowledge my gratefulness to him in helping me as a young practitioner.

In the twenty-nine years of this friendship, I had ample opportunity to study Dr. Briggs. His loyalty to his friends has just been recited to you as in my own case. I am quite sure many, many other individuals could tell the same story.

His generosity to the poor was boundless. I doubt if any other physician in Western North Carolina has had as many charity cases. Many of us here tonight can recollect the hundreds of indigent cases we have seen receive skilled treatment at his hands in the hospitals at Asheville and elsewhere. For many years the afflicted inmates of the School for the Deaf near Morganton were under his care without compensation from school or State.

As an example of his kindness of heart and helping those who were unable to pay, I quote from a book, just off the press, the author of which is a clergyman of our city, who has spent more than thirty years of his life in the mountains of Western North Carolina:

"One afternoon I received a telegram stating that Miss Brown, one of our teachers in an extreme western county of the state, was seriously ill, suffering from mastoiditis, and asking that I come immediately with a physician. I hastened to the office of Dr. Briggs and asked him for his services in this serious case. To ask a busy specialist to close his office for three days and go on that mission was, at least, an unusual request. After some inquiry as to distance, conveyance and time, he said: 'I will go, the train is due to leave in two hours, meet me at the station.' A tiresome journey for six hours brought us to a little mountain village at 10 p. m. We had fifteen miles to travel by private conveyance before reaching our destination. The trip could not be made in the darkness, on a precipitous road meandering across a range of high mountains.

Early next morning we were on the way, being drawn by the best livery team that we could find. Four hours of good driving brought us to our destination.

"Dr. Briggs went immediately to Miss Brown's room and made a thorough examination of her trouble, then told me privately that she had one chance in fifty to live by an operation, but without one she would die within a few days. He requested me to give her the facts, and let her decide what he should do. I tried to be brave and cheerful in delivering the message. After a moment or two of absolute silence like unto death itself, she whispered: 'Tell him I will take the one chance.' I asked if she had any messages to leave with me and she said: 'I do not fear death, I am prepared to go if it is God's will; if I die, bury me here where the people have been so kind to me.' Then asking for a sealed letter on her table she said: 'Take this; if I die, open it and it will tell you what to do.'

"No time was lost in preparing the little kitchen in the cottage as an operating room. The dining table, set apart to be the operating table, was tested as to its stability, and thoroughly scalded with boiling water. In like manner all the vessels and instruments were given sanitary treatment. In the midst of this preparation, the local physician, who was to administer the anaesthetic, went to the drug store for some more ether, got into a quarrel, was knocked down, and was so seriously wounded that he could not assist in the operation. Trouble added to trouble. We wondered what next! By and by a substitute was found and the patient was put on the table. We watched every movement with intense interest, prayed for wisdom and skill to direct and for strength to endure. In due time Miss Brown became conscious, and her symptoms were favorable for recovery. The good news spread rapidly over the community and there was great rejoicing."

To know Dr. Briggs best, you must hunt and fish with him. His companionship on such an excursion was delightful. Being out of doors was his pastime. There was hardly a variety of tree or shrub or flower he could not call by name. He was also exceptionally well versed in habits of the creatures of field and stream. Whether fishing for tarpon off the Florida coast, or trying to lure the speckled trout from beneath the hiding rocks from one of our own mountain streams, he knew just what to do to bring about results.

For eighteen consecutive years he took an annual hunting and fishing trip in the Everglades of Florida, long before the Tamiami Trail was thought of. It was my good fortune to accompany him on several occasions. In his office on Haywood Street were hung two tarpon, each of which weighed more than eighty pounds.

On one of these trips to Florida, he verily saved my life, I am sure. We were the guests of a patient of Dr. Briggs, near Lake Okeechobee, who had a wonderful hunting preserve. Our host had warned us there were quite a number of wild hogs in the vicinity. Personally, I was not hunting for such animals, but about noon on this particular day, suddenly we heard grunts that made my blood

run cold. From the movements of the low palmetto, I could see the hog was coming my way. Knowing what a poor shot I was, I took no chances but threw down my gun, as I did not want any excess baggage in that race, and ran with all my might towards a large fallen pine tree, some two hundred yards distant. Dr. Briggs, close by, shot three times with a high powered rifle, but missed the infuriated animal. Matters looked bad for me, as the hog was gaining in the race. The fourth shot brought the hog down, while I was still fifty yards from the tree. It is needless to say my desire for hunting in that preserve came to an end when the race was over. I spent the remaining time in the less exciting sport of fishing for bass in a nearby lake.

The coastal region of South Carolina, especially around Georgetown, the home of our president, Dr. Ward, where the Waccamaw and the Black Rivers flow together, was a favorite spot for duck hunting. The Alston Plantation was the usual objective, and here I joined Dr. Briggs on one or two occasions. Prince McCants, the patriarch among the Gullah negro guides, was always the doctor's choice, and he knew just the blinds in which to conceal his guest in order to get the good shooting. And just here I might mention that I have never seen a canoe more dexterously handled than by this old negro, in spite of his many years.

Prince was also a local preacher among his race, although he could neither read nor write. Dr. Briggs took great delight in asking this clergyman all manner of biblical questions, such as his belief or disbelief concerning whether or not the whale swallowed Jonah, and did the devil have hoofs and horns, such as the pictures usually represent him as having.

Prince was usually a fundamentalist in his answer. However, one day the doctor found a vulnerable spot in the old negro's armor. He asked Prince if he thought it was right for a preacher to drink whiskey. With a dry smile the old fellow replied that he never hesitated so long as none of his congregation found it out.

On all of his trips Dr. Briggs would nearly always carry a camera with him. Photography was truly a delight, and practically all of these trips were illustrated, so to speak. In later years, with the perfection of the movie camera, he could really take his friends with him in the true sense of the word. Two years ago, while on Ossabaw Island, near Savannah, he secured reel after reel of wild deer, turkey and other game. It was also great sport for him to take movies of his companions without their knowledge, which would be later thrown on the screen at a private gathering to the merriment of other friends present.

He was the ideal host, always generous in sharing his charming home with his many friends, and numbers of us here present, as well as hundreds of others elsewhere, recall the many happy hours spent with Dr. and Mrs. Briggs in their home.

I loved him as we only love one friend.
Through life we walked, in all things side by side.

He shared with all men both their joy and care;
And living so, he died:
Like common mortals, met the common end.
The world has lost a man it ill could spare;
And I have lost a friend.

DR. HENRY HARRISON BRIGGS

By

I. J. Archer, M.D.

I have been asked to speak of Dr. Briggs as a physician and a surgeon. It is peculiarly appropriate on this occasion to consider how the spirit of a man affects his work.

A man *may* be a great physician or a great surgeon without a great soul, but he falls short of his potential greatness unless so endowed. He fails to attain the measure of perfection which is possible to him. The finer things of a man, which we call spirit, bring to his work a degree of interest, without which he fails to register his best in matter of attention and execution. Henry Harrison Briggs was a great surgeon, because to native ability and attained skill he added the human interest element—a great soul.

Whether scientist, artist or artisan he does the best work who considers how his toil may affect another. He is not a great surgeon who stops to consider how poor or how rich may be his patient, neither is he a great surgeon who considers his patient merely as an operative risk, for such a one sooner or later becomes merely a mechanic—an anatomical carpenter.

It often happens that little things show how great we are—or the converse. I am thinking of an incident which occurred over in the old office, where the George Vanderbilt Hotel now stands, and am telling it as Mrs. Archer saw it and told me. The waiting room was crowded this particular morning, as always, with a group of patients from the various walks of life, and with difference of social rating showing in their countenance, bearing and apparel. A little black girl had entered in a hesitating manner, and was looking around in a most apprehensive way, for so many well-dressed people meant a new world to her. Dr. Briggs opened the door of his office, and smiled a greeting to all. He saw the little frightened colored girl, and went straight over to her, while furs and diamonds looked on and waited. He asked the frightened child what was the matter, and she sobbed out that "Granny" had broken her glasses, and handed them to the doctor. He took them, patted her on the shoulder and said, "Tell Granny I'll fix them," and told her, with all the deference of a christian gentleman dealing with the lowly. In this incident we see a great surgeon, whose mind has become more inspired and fingers more deft, because of the soul we have seen shining through.

Justice, mercy and humility add to any man's efficiency, because they inspire him to do the noblest that in him lies.

There is a law of hospitality which will not permit the one conferring a favor to allow the one receiving it to rest under any sense of obligation, and when he gave of his skill to another he followed this unwritten code.

He enjoyed the good-will and approval of his fellow physicians —and which one of us does not? Yet he never allowed it to determine the course of action he should take. The man who is superior to the voice of popular approval is also superior to the fears, apprehensions and timidities pertaining thereto. With him there was no pomp of circumstances, nor vulgar display of knowledge. Only the small minded of limited learning become self-assertive.

Call it whatsoever we may, there is a superior realm of spirit which is not confined and bound in by scientific investigation and terminology, neither is subject to rational processes, and in this domain of spirit lies the answer to our question of what determines our greatest possible scientific attainment, and gives to us all the fuller meaning of the powers with which we find ourselves endowed.

Labor and reward are so intimately blended in every sphere where we live and work that we are inspired and stimulated by the character of the motive which urges us on. If the motive be low and mean, or selfish and mercenary, it shows in the character of our work. No man attains his best until he becomes actively conscious of his responsibility to some thing or some one outside of himself, whether it be person, country, or God; and the loftier his ideal—his sense of responsibility—the finer becomes his work. "Carry the message to Garcia" is a great literary production, because it symbolizes to each of us a great psychological and spiritual truth. It was because of his sense of responsibility, this spiritual quality of the man we mourn, that he rose to such eminence. Our western civilization is so utilitarian that we take too little time to cultivate the beautiful and the spiritual. The Oriental is, perhaps, *too* dreamy-minded, but we may well gather *something* from him which will do us good. Mahomet is reported as saying, "If I had two loaves of bread, I would sell one and buy a hyacinth."

The character of the work done by our departed friend was influenced, not only by his reason and skill, but by his superior spirit as well. It steadied his mind and added dexterity to his obedient technique.

He had an adventurous spirit, which, at times, questioned whether the generally accepted method of opinion and procedure comprehended all that was to be known and done in any given case. It is important in the world of medical science that the one who ventures out beyond established methods and boundaries, should first establish in his own mind the soundness of his thesis and method, before presenting it to his fellow workers as a contribution to existing medical and surgical knowledge, and into these new fields he ventured, but always cautiously.

He strove to be accurate, rather than sensational. The spirit of our age is to tear down present methods and standards, without

DR. HENRY HARRISON BRIGGS

stopping to ask whether the new is better than the old, but when he offered any contribution to medical or surgical knowledge he depended upon the verdict of time to establish the correctness of his position.

His bigness of mind and his catholicity of soul were shown in his freedom from the pride of opinion and the narrowing influence of jealousy, which might have prevented his seeing the excellence of another man's work and adapting it to his own use, with due credit always where it belonged. His conduct put into effect the homely poetic philosophy of Pope:

> "Be not the first by whom the new is tried,
> Nor yet the last to lay the old aside."

He was not only sincere emotionally in the sphere where his thinking affected only himself, but he was morally sincere in the world where conduct envolves others than self.

Concerning his achievements in the surgical world, he was always modest in his estimate of their value, but he never hesitated to *defend* them, because he had already satisfied himself that they constituted a valuable addition in the field of medicine prior to making them known to others.

In his relation to his medical associates, he did not spare himself, but gave unstintedly of his time in preparing and reading papers for the various medical associations with which he was affiliated, and which he adorned so conspicuously. Through the courtesy of Miss Williams, I have been furnished with copies of some of his published articles, and among them were the following:

The General Practitioner in Relation to Specialism, with Special Reference to Ophthalmology.

Mastoiditis; with Special Reference to the Surgical Treatment.

The Early Manifestations of Laryngeal Tuberculosis; Their Frequency and Treatment.

Etiology, Diagnosis and Treatment of Suppurative Inflammation of the Maxillary Sinus.

A New Method of Tendon-Shortening Without Severing the Tendon and Without the Use of Needle and Suture.

Tuberculosis of the Middle Ear.

Tendon Shortening; Author's Method.

Hereditary Congenital Ptosis: With Report of 64 Cases Conforming to the Mendelian Rule of Dominance.

The Importance of Heterophoria Tests in Routine Refraction.

Roentgenography and Transillumination: Comparative Value in Diagnosis of Diseases of the Frontal and Maxillary Sinuses; Author's Method of Transillumination.

Depressed Fractures of the Nose.

The Comparative Value of Transillumination and Roentgenography in Diagnosis of Maxillary Sinus Disease; Author's Methods.

Treatment of Laryngeal Tuberculosis.

The Evolution of the Human Face; Its Significance in the Fields of Rhinology and Stomatology.

Dr. Briggs was Chief of Staff of the Asheville Mission Hospital, and was a member of the following societies:

Buncombe County Medical Society.
North Carolina Medical Society.
Southern Medical Society.
American Medical Society.
Associations of Surgeons of the Southern Railway System.
American College of Surgeons.
American Association of Ophthalmology and Otolaryngology.
American Federation of Organizations for the Hard of Hearing.
American Laryngological, Rhinological and Otological Society.
American Ophthalmological Society.
American Academy of Ophthalmology.

He devised the instruments for straightening crossed eyes, the operation being known as the Briggs' operation, or tendon shortening. The old method of straightening crossed eyes required about an hour to an hour and a half, but the new method takes about ten minutes.

He also originated the Briggs' transilluminator for transillumination of the nasal accessory sinuses, this instrument having a graduated light.

There is a quality of mind and soul obtaining among friends which prevents their seeing and admitting any fault or failure in each other without feeling a sense of disloyalty. Doctor Briggs may have rated below 100 per cent in some phase of his character—else he were superman—but if this be true, you must seek the truth of it from others, for in my home he was always named only with love, honor and respect.

He wrought with sincerity, integrity, ability and skill and into the last weeks and months of his life must have come no little satisfaction, as he lived over again the work he had done and the motif of his life and the ideals which had beckoned him on.

He has gone on before us, and has entered into the tomorrow of our existence and experience. We do not often speak the one to the other of the article of death and the crossing over, lest something should be lost to us of the sanctity of our innermost souls. I wonder if he might not have been considering *within himself* what lies out beyond, and with somewhat of the comfort which Bryant has expressed in his immortal Thanatopsis:

"So live that when thy summons comes to join
The innumerable caravan that moves
To the pale realms of shade, where each shall take
His chamber in the silent halls of death,
Thou go not like the quarry slave at night

Scourged to his dungeon; but sustained and soothed
By an unfaltering trust, approach thy grave
Like one who wraps the drapery of his couch
About him—and lies down to pleasant dreams.''

We who remain and mourn his untimely going may well take pattern of his stature as one of God's noblemen. His memory will linger among us as a sweet incense, as we say, in the words of Robert Louis Stevenson—

''Home is the sailor—home from the sea;
And the hunter is home from the hills.''

DR. HENRY HARRISON BRIGGS

From a Patient

Among the group of physicians gathered tonight to pay honor to the one who has gone, are not a few with whitening locks. Such will recall the days, now long since past, when, in the esteem of the families of that age, the doctor was considered next to the minister. Sometimes then, as now, the doctor was indeed often a minister in very truth, and, therefore, came first in this affectionate regard. I belong to that generation. We were taught by our grandmother to revere alike our pastor and our doctor.

When we came to Asheville nearly 18 years ago, we learned of the wide reputation of Dr. Briggs, and had occasion soon thereafter to consult him. I shall never forget that first interview. It was in the old office, where the George Vanderbilt Hotel now stands. The reception room was crowded. People from all walks of life patiently awaited their turn. The disabled mountaineer sat next to one who a short time before had rolled up in her limosine. All alike observed the sequence of appointments, no one taking precedence of another to that inner office for consultation.

From the very outset of my acquaintance, two things about Dr. Briggs impressed me. The first, his wonderful poise, that unhurried way he had with us all, even to the extent of talking for a moment about other topics than the errand uppermost. In this way I received flashes of that fine mind of his, of his eagerness to avail himself of every chance remark that should open doors into the fascinating subjects of art, music or literature—just a momentary respite for him from the ever engrossing subject of our ills and ailments. I think now that was the only way he could get through the more than exacting demands of the day. The other quality was his human interest in people.

When, later, he bought the house nearby, which was wholly given over to the various offices relating to his profession, even these enlarged quarters were thronged with patients seeking his counsel. That eagle eye of his, which, with the aid of the magnifying glass, searched for the difficulty, that steady hand with its un-

erring touch, that supreme skill that brought relief to countless numbers, has become a tradition that Asheville can ever treasure. What now of those who have been waiting for the ripening of cataracts until that day he was to bid them come for the delicate operation! They are indeed bereft.

From the standpoint of one who has been blessed with the privilege of the healing touch coming from his hand, I should like to instance a very remarkable case of a lady who lay at death's door in a hospital in Greenville, S. C. All doctors know the call that comes inopportunely, when one's spent force has been given to the day's demands. In this extremity came the telegram asking Dr. Briggs to motor at midnight to this southern city to save, if possible, the life of one of Spartanburg's rarest residents, a lady for whom the whole community were praying. The case was so very unusual. One recalls Shakespeare, he of the large view; Shakespeare, who is claimed alike by poets, musicians, dramatists, scientists, philosophers and theologians, so apt, so keen of insight is this writer of the ages in his fine estimates. In "Hamlet," Shakespeare says:

> Diseases, desperate grown,
> By desperate appliance are relieved,
> Or not at all.

This case had reached its zenith. That critical moment that one must meet, alone, is the great test of skill. This incident may have been duplicated, but is regarded by those who know, as no less than a miracle. Briefly stated, these are the facts related by the patient herself:

"I only know that I had what I call an infected jugular vein, following mastoid. Dr. Briggs tied off the vein in two places, and took out the infection—a most unusual and delicate performance, and was most successful. The work was done beautifully, and I am alive as a result.

"It seems so strange, but I always forgot I was sick when I went to consult him. He was so virile, so strong, such a tower of strength to lean on, that one just simply unburdened one's load upon him, so to speak, and then went on one's way rejoicing. If he had told me that he felt it would be necessary to cut off my head and put it back, I should have let him without a thought. His kindness was unsurpassed. It surely can be said of him that he gave his life for humanity. To him, all humans were God's children, to be cared for, and class meant nothing."

And whether white or black mattered not in the least to him. The day his body was brought to Asheville, was the Interracial Meeting. The colored people sincerely mourned his passing, and felt they had lost one of their truest friends.

He might well have been called Dr. Greatheart Briggs, for he has aided and befriended in one and another way, and especially professionally, scores on scores of people who were unable to meet their obligations.

We have lost, not only a noted physician, but a citizen, whose qualities of mind and heart were everywhere recognized. The poet, Charles Swain, somewhere says:

> "What is noble?—to inherit
> Wealth, estate, and proud degree?—
> There must be some other merit
> Higher yet than these for me!—
> Something greater far must enter
> Into life's majestic span,
> Fitted to create and centre
> True nobility in man."

Indeed the poets are our true interpreters. When it comes to such great questions as the immortality of the soul, Richard Watson Gilder well sets forth this theme when he says:

> "Call me not dead. . . . Let thanksgiving
> Rather be made. Say: 'He at last hath won
> Rest and release, converse supreme and wise,
> Music and song and light of immortal faces;
> Today, perhaps, wandering in starry places,
> He hath met Keats, and known him by his eyes.
> Tomorrow (who can say?) Shakespeare may pass,
> And our lost friend just catch one syllable
> Of that three-centuried wit that kept so well;
> Or Milton; or Dante . . . .' "

Our memories of the one who has left us will always remain, for "To live in hearts we leave behind is not to die."

DR. JAMES C. BRIGGS

Dr. James Clark Briggs, age 108 years, died at the home of his son in Selma, N. C., January 22, 1931.

Dr. Briggs was the oldest physician in North Carolina, and probably the oldest in the United States. He was born in New York State of Scotch Irish and German ancestry, noted for their longevity. He had practiced medicine for sixty-three years, most of which was in the State of Oklahoma. He served throughout the Civil War as surgeon in the 13th Wisconsin Regiment of the Federal Army. For fifteen years he was head of the Veterans' Home at Johnson City, Tenn.

He is survived by one son, George Avery Briggs, of Selma, and one sister in Wisconsin.

DR. HAROLD H. CAUBLE

Dr. Harold H. Cauble, son of Mr. Julius Cauble of Rowan County, died at the Yadkin Hotel, Salisbury, N. C., November 20, 1930.

Dr. Cauble had been a practicing physician of Kannapolis, for twelve years, and recently had suffered much from heart trouble. Before moving to Kannapolis, he had practiced medicine at Faith, Rowan County.

DR. HENRY IRWIN CLARK

Dr. Henry Irwin Clark died April 17, 1930, of cardiac disease, at his home at Scotland Neck, N. C.

Dr. Clark was 73 years old when he died. He was a member of the graduating class of 1879 of the University of Maryland, College of Physicians and Surgeons.

HENRY IRWIN CLARK

By

Dr. Julian M. Baker

Henry Irvin Clark, M.D., born in Tarboro, N. C., April 19, 1957, son of Governor Henry T. Clark and Mary Parker Clark, died on April 17, 1930, at the age of seventy-four years.

Dr. Clark studied medicine at Bellevue Hospital Medical College in New York City in 1877 and 1878, was graduated from the University of Maryland in Baltimore in 1879. Immediately after graduation he commenced his internship in Baltimore City Hospital, Bayview, and remained there two years. Upon retiring from Bayview he commenced private practice in Hamilton, N. C., in association with the late Dr. John W. Sherrod, remaining in Hamilton until 1901 when he removed to Scotland Neck, N. C., continuing the practice there until his death.

On November 3, 1885, Dr. Clark married Miss Alethia Barrow of Jackson, N. C. Surviving him are his widow and five children, Mrs. Wm. J. Gordan, Henry T. Clark, Mrs. Thurman D. Kitchen, Irvin Clark and Miss Laura Placidia Clark, the last two unmarried.

Dr. Clark was a most active and enthusiastic member of the Masonic fraternity during his whole life. He was devoted to its tenets and traditions, exemplifying them in a high degree by a service of sacrifice and love, thereby promulgating its teachings and principles. After serving in all offices in the Subordinate Lodge of Masons and the Grand Lodge, in 1902 and 1903 he was elected Grand Master of the Grand Lodge of North Carolina. He served as Major, Medical Corps, North Carolina National Guard, from 1912 to 1916. Upon the declaration of war against Germany by the United States he made every effort to continue in the service, but having passed the age limit was automatically retired.

And thus has passed one of the few remaining doctors of the old school. A life-long general practitioner, a country doctor, the friend, counselor and confidant of all his clientele, courteous, polished, cordial, a good sport, always. He could take reverses without a murmur, but always willing and anxious to help anyone in distress. A prince in hospitality, a christian gentleman. His community, his county and the state is better because Irvin Clark has lived and moved and had his being.

This is but a feeble tribute of a friend of boyhood days, a college mate, a bedfellow in medical student days, and for fifty years a contemporary and associate in the years of his professional activity. His life deserves emulation and praise, and should serve as an example for those who follow. Fame and fortune had but few attractions for him. His chief ambition was to serve humanity in sickness and distress. He was a friend of man.

DR. NORVAL LITCHER COINER

Dr. N. L. Coiner, Durham, N. C., died at his home at that place on ————, 1931.

Dr. Coiner was born in 1859. He graduated in medicine in 1884 and was licensed by the State Board of Examiners in 1913.

DR. J. I. COLEMAN

Dr. J. I. Coleman, 63, one of Durham's best known physicians, died October 21, 1930.

Dr. Coleman was a native of Person County.

He is survived by his wife, five sons, and eight daughters.

DR. GEORGE COLLINS

Dr. George Collins of Charlotte, N. C., died at his home, June 11, 1930.

Dr. Collins was director of the bureau of maternity and infancy of the State Board of Health, but had been ill for several months and was on leave of absence from his duties with the board at the time of his death.

Dr. Collins was a native of Marshville, N. C. He was educated at Baird school for boys in Charlotte, and later attended Wake Forest College, then Jefferson Medical College in Philadelphia.

DR. GEORGE COLLINS DESERVES PRAISE FOR GREAT WORK HE DID

By

John Q. Myers, M.D.

Many children and mothers can attribute their being alive today to the advice they received from the late Dr. George Collins, who was for many years head of the Division of Maternity and Infancy for the State Board of Health.

Dr. Collins, whose untimely passing has caused much regret to those who knew him, was an affable young man. He took great pride in his work in advising mothers how to bring their children into this world with a minimum of danger. To him must go a share of the credit of reducing the maternity and infancy death rates in North Carolina.

Only a few of his most intimate friends were cognizant of his physical condition. Dr. George Collins was never the man to talk about himself. He worked at his job conscientiously and wrought well. He was regarded as a valuable man by the State Board of Health. His passing is well nigh an irreparable loss to the Board of Health.

DR. W. A. COOPER, JR.

Dr. W. A. Cooper, Jr., age 25 years, died at his home in Raleigh on ————, 1931.

Dr. Cooper was born in 1906 and graduated in medicine in 1930.

DR. JULIUS EDGAR DUNCAN

Dr. Julius Edgar Duncan, age 55, died at his home in North Wilkesboro, August 15, 1930, of carcinoma.

Dr. Duncan graduated from the University Medical College at Richmond, Va., in 1907, and had been a prominent practicing physician in Wilkes County since that time. He was past-President of the Wilkes County Medical Society.

DR. W. E. EVANS

Dr. W. E. Evans, prominent Rowland physician, died in a hospital at Florence, S. C., December 11, 1930, of injuries he received December 2 when an Atlantic Coast Line train struck the automobile in which he was riding.

DR. WILLIE E. EVANS

By

Dr. R. S. McGeachy

Willie Earnest Evans of Rowland, N. C., died in Doctor McLeod's Hospital, Florence, S. C., on the morning of December 11, 1930, from injuries he received when the automobile he was driving was struck by Atlantic Coast Line train No. 81 the night of December 2nd. In this accident his hip was crushed and he received scalp injuries. He was buried in Carthage, N. C., on December 12, 1930.

Willie Evans, the second son of Rev. Joseph and Agnes Moorhead Evans, was born in Sherbrook, Canada, August 7, 1867. His father was a native of County Tyrone, Ireland, and his mother of the Province of Quebec, Canada. Before Willie was a year old his parents moved to North Carolina, and his father became pastor of the Saint Paul's, Rock Fish and Ashepole Presbyterian churches, and Willie

grew to young manhood on a farm on the Fayetteville-Lumberton road, about two miles north of Saint Paul's. Some of the most pleasant memories of early childhood are closely associated with Will Evans, for we were neighborhood boys. He attended the neighborhood schools and later entered Hampden-Sidney College, from which he graduated in June, 1890. In August, '90, he began teaching in the Carthage, N. C., schools, and while teaching there he also read medicine under Doctor Gilbert McLeod. In the fall of '91 he entered the Medical College of Virginia from which he graduated with first honors in '94, winning the Alumni Medal and first prize in Surgery. He was licensed to practice in North Carolina by the State Board of Examiners in Greensboro in May, 1894. He served as Clinical Assistant to Professor of Surgery in the Medical College of Virginia and formed a partnership with Doctor McLeod. After practicing in Carthage for two and a half years he moved to Thomasville. On July 27, 1898, he married Miss Ida E. Stuart of Carthage, and in March, 1899, moved to Rowland, N. C., where he lived and practiced until his death. Soon after moving to Rowland he joined the Ashepole Presbyterian Church. Two years later the Rowland Presbyterian Church was organized and Doctor Evans was elected Ruling Elder and Clerk of the Session, which position he held until his death.

The following is a quotation from a beautiful tribute to Doctor Evans by Professor A. B. Cameron, published in the "Moore County News" of January 29, 1931.

"Now and then it is our privilege to touch a life so strong in its sweetness, so mighty in its gentleness, so beautiful in its unselfishness that our carefully erected standards of greatness crumble to dust, and we contemplate the things of life in a clearer light as we realize that we have been with one who 'has walked with God'." Such a one was Dr. W. E. Evans.

And this is a tribute from one of his colored patients, published in "The Robesonian," on December 24, 1930:

"Please low me a little space in your paper, Dr. W. E. Evans has ben my doctor for me and family it was sad to me and all the colored peple around Raynham to her of his death. We hope he is save in armes of Jesus his way he treed the colored peple around he mad the peple love him he com and wate on the sick and cher them up when tha felt bad i am got a little boy he wated on in 1928 and that little boy all wase love him wee hate it for the other boys that wase with him his menny kind deds want bee forgotten."

DR. EDWIN BONCILLE FEREBEE

Dr. E. B. Ferebee, 65 years old, died at his home at Bellcross, N. C., on September 25, 1930.

Dr. Ferebee graduated from the College of Physicians and Surgeons of Baltimore, Md., in the year 1885.

DR. ROBERT J. GILL

Dr. Robert J. Gill, perhaps the dean of North Carolina's active practitioners of medicine, died at his home in Henderson, on the eve of his eighty-fourth Christmas. It is said of this aged physician that "he never refused to answer a call because of race or color, and never stopped to ask about his fee." He was born December 11, 1846, in Franklin County, North Carolina, and received his medical education at the University of Pennsylvania. He was attached to the medical corps during the Civil War, and following this service practiced medicine in his community for sixty-three years.

The late William Francis Gill, Professor in old Trinity College, was a son of this venerable physician.

DR. JAMES RUFUS GORDON

Dr. J. R. Gordon, 73 years of age, died at his home at Jamestown, February 20, 1931.

Dr. Gordon was four times a member of the State Legislature from Guilford County.

His death was caused indirectly by a stroke of apoplexy which he had some years previous to his death. He was a member of the Methodist Church.

DR. JAMES RUFUS GORDON

By

L. B. McBrayer

Dr. James Rufus Gordon died February 20th, 1931, at his home in Jamestown, at the age of 73. He had practiced medicine from the time of his graduation from the College of Physicians and Surgeons, Baltimore, until 1922, when he had a hemorrhage into the brain, from which he did not fully recover.

He served four terms in the Lower House of the General Assembly from Guilford County, 1905-07-09 and 11. There were two outstanding accomplishments in his legislative career: (1) The passage of what is known as the Gordon Bill, placing county officers on salaries instead of fees, which has saved hundreds of thousands of dollars to the people of the State and will continue to save in increasing amounts. (2) The establishing of the North Carolina Sanatorium for the treatment of Tuberculosis in 1907 and as Chairman of the Appropriation Committee in the House securing the first appropriation therefor, in amount $7,500.00. He was a member and chairman of its Board of Directors, 1907-1913. He was Chairman of the Committee from the Board to select the site, and the location of the present wonderful institution was selected on his recommendation.

He was for five years on the Executive Staff of the State Board of Health.

A fine physician, an honest God-fearing man, a loyal, devoted citizen who served his people and his state nobly and well.

DR. T. A. GRIFFIN

Dr. T. A. Griffin, well-known physician, died at Morganton, December, 11, 1930, at the age of 50 years. He had practiced at Clayton, Wendell and Greensboro but for several months had given up active practice on account of ill health.

DR. E. J. GRIFFITH

Dr. E. J. Griffith, 63 years of age, long prominent in politics, died November 11, 1930, at Edenton, after an illness of several months from paralysis.

Dr. Griffith was State Senator in 1921 and represented Chowan County in the Legislature in 1917 and 1928.

DR. JULIUS CLEGG HALL

Dr. Julius Clegg Hall, 55, one of Albemarle's most prominent physicians, died at the Yadkin Hospital, October 3, 1930, following an illness of several days with malignant streptococcic sore throat.

During his lifetime of practice in the medical profession, Dr. Hall had many times been honored by his colleagues. At the time of his death he was Secretary of the Stanly County Medical Society, and was a member of the advisory board of the Yadkin Hospital.

Dr. Hall was born in Montgomery county, near Star. He was educated at Trinity College, and received his medical diploma from the University of Richmond in 1890. Following his graduation he practiced at Boardman for five years.

He was prominent in civic and fraternal circles, was a Mason, Shriner, member of the W. O. W., Lion's Club, and an active member of Central Methodist Church.

Dr. Hall is survived by his wife, who was Miss Maye Fitzgerald of Chatham, Va., one daughter, Mrs. Evelyn Hall Turner, and one grandson, Dent Hall Turner.

DR. BENJAMIN S. HERRING

Dr. Benjamin S. Herring of Wilson, N. C., died October 6, 1930, at the age of fifty-three.

Dr. Herring graduated from the University of Michigan Medical School at Ann Arbor, in 1900, and at the time of his death was medical director of the Moore-Herring Hospital.

DR. GEORGE C. HOLLAND

Dr. Geo. C. Holland, a resident of Dallas, North Carolina, died of uremia at his home at that place on February 4, 1931.

DR. EDWARD M. HOLLINGSWORTH

Dr. Edward M. Hollingsworth, 65, died at his home at Mount Airy, February 11, 1931. He was a son of Dr. Joseph and Mrs. Mary Brown Hollingsworth, and has resided at Mount Airy practically all his life.

DR. HARDY JOHNSON

Dr. Hardy Johnson, 76 years of age, retired practitioner, died at Reidsville, February 5, 1931, of paralysis.

Dr. Johnson had spent most of his life in active practice in Eastern Carolina, but two years ago removed to Reidsville where he remained until his death.

DR. FRANK LACKEY

Dr. Frank Lackey, prominent physician of Fallston, died at the Shelby Hospital, November 15, 1930, from paralysis.

Dr. Lackey attended school at Oak Ridge, University of North Carolina, and the University of Maryland.

He was 41 years old and is survived by his wife and four children.

DR. CHARLES O'HAGAN LAUGHINGHOUSE

Dr. Chas. O'H. Laughinghouse, aged 59, died at a High Point hospital August 26, 1930. Dr. Laughinghouse had been sick for about five weeks with phlebitis, but there was nothing serious in the case, in fact, those in attendance knew he was improving and were satisfied with his condition. However, when least expected, he developed heart block and died within fifteen minutes after its development.

Dr. Laughinghouse was a member of an old and prominent Pitt County family. He was born at the old homestead on February 25, 1871, the son of Joseph John and Eliza (O'Hagan) Laughinghouse and received his early education at private schools and at Horners Military Academy, Oxford.

He attended the University of North Carolina for two years and completed his medical education at the University of Pennsylvania, where he was graduated in 1893.

He returned to his old home in Pitt County to practice and soon attained prominence in his profession. In 1896, he married Miss Carrie Dail, of Snow Hill, who with a daughter and two sons survive him.

Dr. Laughinghouse volunteered for service in the World War in May, 1917, and was assigned to the organization of the medical profession of the State. Later he was assigned to the officers' training camp at Fort Oglethorpe, Ga., with the rank of major and in September, 1918, was sent to France as lieutenant-colonel in command of Base Hospital No. 85. He saw service in France until March, 1919, when he returned to the United States and resumed his practice of medicine.

Dr. Laughinghouse was a fellow of the American Medical Association and was former president of the North Carolina Medical Society and the Tri-State Medical Society. He was a member of the Pitt County Medical Society, the Second District Medical Society, the Southern Medical Society and the Seaboard Medical Society.

He was a Mason and a member of the Knights of Pythias.

Sincerely
Chas. Ott. Laughinghouse.

He was a consistent member of the Methodist Church.

He had been a member of the State Board of Health, 1911 to 1926, when he became State Health Officer, in which office he continued until the time of his death. He was an Honorary Fellow of this Society.

DR. CHARLES O'HAGAN LAUGHINGHOUSE

By

Dr. W. S. Rankin

Family: Dr. Charles O'Hagan Laughinghouse was born in Greenville, Pitt County, North Carolina, February 25, 1871.

His father was Joseph J. Laughinghouse, a prominent citizen of Pitt County, and an active and constructive leader in eastern North Carolina. On his father's side of the family, Dr. Laughinghouse came of a pure English ancestry, whose first settlement in the new world, more than two hundred years ago, was in the old town of Bath. From that section of Beaufort County the family later moved to Chocowinity Township.

His mother was Eliza O'Hagan, the daughter of Dr. Charles J. O'Hagan. Dr. O'Hagan was born in Ireland and graduated at the University of Belfast. Immediately after his graduation, he obtained a position with the Queens Geographical Survey, which gave him an opportunity for travel in Ireland, England, Scotland and Wales. He resigned from this position to come to America; accepted a place with a large grocery store in New York and bought vegetables from Commodore Vanderbilt, who at that time was a truck farmer, and delivered his vegetables personally. From New York he came to Hookerton, North Carolina, and taught school. From Hookerton he went to Kinston as a school teacher, and from Kinston to Greenville, at which place, while he was teaching, he took up the study of medicine with Dr. Goelett, the father of the famous Dr. Goelett of New York. He began the practice of medicine in Greenville in 1850, and was Brigade Surgeon in Ransom's Brigade through the entire Civil War. After the surrender at Appomattox, Dr. O'Hagan returned to Greenville, where he continued the practice of medicine until his death in 1900.

Dr. O'Hagan was easily one of the most brilliant physicians who ever adorned the medical profession of this State, and possessed, in all probability, a larger share of the respect and affection of the profession of his State than any other North Carolina physician before or since his time.

Dr. Laughinghouse was married to Miss Carrie Dail of Snow Hill, North Carolina, in June, 1896. Three fine and dutiful children have blessed the union: Helen (Mrs. Richard Stokes of Danville, Virginia, and Greenville, North Carolina), Charles O'Hagan of Hopewell, Virginia, and Haywood Dail of Greenville, North Carolina.

Those who have had the good fortune to partake of the generous and unaffected hospitality of the home, and who have observed

through privileged intimacy the cheerful and helpful relation between husband and wife, have been impressed with the rare judgment and good taste of Dr. Laughinghouse in his choice of a wife —a wife who is in a very real and rare sense an inspiration when grinding routine would stifle the flame, and a help in every pinch where the urgent circumstances that are associated with heavy professional responsibilities make excessive demands.

Education: Dr. Laughinghouse attended school at Trinity High School at Chocowinity, North Carolina, where he came under the influence and tutelage of an exceptional man and able teacher, the Reverend Collin Hughes, D. D. From Chocowinity he went to another famous school, Horner's School, at Oxford, North Carolina, which was under the direction of the late James M. Horner, one of the State's great teachers. After two years at Horner's School, Dr. Laughinghouse entered the University of North Carolina. Because of the absence of any carefully defined relation between the curricula of preparatory schools and the colleges and universities at that time, Dr. Laughinghouse, on entering the University, found himself assigned to classes in the freshman, sophomore, and junior years. After one year at the University, he entered upon his professional studies at the University of Pennsylvania, where, after three years, in 1893, he graduated with the Degree of Doctor of Medicine.

The Physician: Returning to Greenville, he began the practice of medicine with his grandfather, Dr. Charles J. O'Hagan. The complete confidence and great respect which was everywhere accorded his grandfather by both public and profession, make it quite unnecessary for the grandson to pass through what Dr. Osler has termed "the bread and butter period" of medical practice; he did not wait for practice; a practice awaited him. He began practice, then, with a "running start," and, for thirty-two years, from 1893 to 1925, he maintained a pace in his professional work that few men have the physical endurance to maintain, even for a fraction of so long a time. Few, if any, members of the profession in this State, have had so active a professional career.

A good start was not all the grandfather gave the grandson. He gave of an abundance of idealism and the philosophy of experience, with which only rare men are blessed, and so, added to opportunity for service, high ideals of quality of service.

To make the buckle of quantity meet the tongue of quality in an ever-enlarging practice, Dr. Laughinghouse had two important auxiliaries, his wife and a rather unique office organization.

Mrs. Laughinghouse, for many years, lived by day and slept by night within easy reach of the telephone. She received the calls, the reports on the conditions of patients, intercepted the doctor as he went from home to home through the town and county, and so economized his time and mileage. Few women have done more to conserve the energy of a physician and to enlarge the sphere of his professional service.

To keep pace with increasing demands without sacrificing the quality of his professional work, Dr. Laughinghouse, many years ago, effected an office organization that has demonstrated the way by which a physician in great demand may multiply his capacity for service at least three-fold. He employed as bookkeeper, business manager, and office nurse, a very bright and, in every way, a capable woman, Mrs. Blanche Cherry, and had her trained to do the routine laboratory work which is such an essential part of a modern general practice. After several months of training, Mrs. Cherry became proficient in doing at least ninety-five per cent of the laboratory work needed in general practice, including analyses of urine, bacteriological examinations of expectoration and swabs from throats, examinations of the blood for malaria, examinations of excreta for intestinal worms, and blood counting. In addition to the laboratory work, Mrs. Cherry directed the keeping of the books and assisted in all obstetrical practices, giving meticulous attention to the hygiene of pregnancy, and the care of obstetrical cases during the lying-in period. In this way the maternity and infancy morbidity and mortality rate in his practice was reduced to practically nil. She recorded much of the routine history of patients, economizing the doctor's time in that way. She gave hypodermic intravenous treatments, did the vaccinations and immunizations, dressed wounds, and assisted Dr. Laughinghouse in his surgical and obstetrical work.

His active and extensive practice, carrying him into all parts of a large county, rarely prevented him from attending the meetings of his county, district, state and tri-state medical societies. In the larger affairs of his profession, he always exercised a constructive influence, and was an acknowledged leader. From very early in his professional career he was honored with the larger responsibilities of his profession. In 1895, two years after beginning the practice of medicine, he was made essayist of the State Medical Society; in 1896, he was elected Chairman of the Section on Surgery; in 1902, he was elected to membership on the State Board of Medical Examiners; in 1911, he was elected to membership on the State Board of Health, a position which he held until 1925, when he was elected Secretary of the State Board of Health and State Health Officer; in 1917, he was elected President of the North Carolina State Medical Society; in 1923, he was elected President of the Tri-State Medical Society of Virginia, North Carolina, and South Carolina.

Small individuals may emigrate into medicine, but usually remain aliens to the finer traditions and higher aspirations of the profession; with their characteristic near-sightedness they rarely see beyond the individual patient. On the other hand, the true disciples of Aesculapius, whose spirits are in harmony with the larger social interests and purposes of their profession, treat individual patients not as integers but as fractions of that larger expression of life, the social organism.

Dr. Laughinghouse was, from the inception of his professional career, ever awake to the larger community aspects of medicine.

In 1902 he addressed the State Medical Society upon "One of the State's Immediate Needs—Shown by Legislative Enactment." The address was a strong plea for increased appropriations for public health work. It attracted wide attention and had an effective influence in bringing about favorable health legislation.

In the establishment of the Caswell Training School for the Feebleminded, Dr. Laughinghouse took a leading part. He delivered the dedicatory address at the laying of the cornerstone. This address had a wide circulation at home, and many requests for copies of the address were received from other states.

Another address on the subject of "The Diagnosis of Incipient Tuberculosis From the General Practitioner's Standpoint" has been of very real service in awakening physicians to a keener sense of responsibility in the important part which the medical profession has in the reduction of the death rate from that disease.

In the campaigns against hookworm disease and malaria, Dr. Laughinghouse became an early and active ally of Dr. Stiles and Dr. Von Ezdorf.

As physician for the East Carolina Teachers' Training School, he took great interest in applying the best established modern procedures for preventing disease among the students, and for maintaining their health at a high state of efficiency. Here, as elsewhere, he was never myopic in the planning of his work, but always kept the larger objective in the line of vision, and so his major interest in his work as school physician was not so much the health of the student body, important enough as that was, but to develop the young teachers as missionaries for carrying the gospel of prevention to the various communities to which they were to return.

Dr. Laughinghouse took an early and persistent interest in the establishment of a full-time health department in his county, and largely through his influence and interest Pitt County was among the first counties of North Carolina to employ a full-time health officer.

The Citizen: No one with a reasonably sensitive conscience to social needs and values can be concerned to any extent with the problem of human life without becoming more and more actively interested in those conditions of the community which directly and indirectly reflect themselves in the vitality and the efficiency of its citizens. A good doctor is, therefore, of necessity a good citizen. Dr. Laughinghouse always gave ungrudingly of his time and energy to the more important civic improvements which have taken place in his community. He was never an indifferent and passive voter in the election of his county officials. He has taken an active part in all of the more important civic movements; in the various bond issues for schools and good roads, he has contributed an active leadership.

He was one of the active influences in securing the location of the East Carolina Teachers' Training School at Greenville.

For many years he worked to persuade his community to build a county hospital. In drafting an act for the Legislature to serve

as an enabling act to permit his county to vote bonds to build a hospital, he thought, in his characteristic, large-visioned way, of the possible needs of other counties, and drafted an act which permitted any county to provide itself with a community hospital. This legislation, which was passed by the General Assembly of 1917, is our present most excellent state hospital law, a law which was so carefully prepared that it has existed now for fourteen years without amendment. Unfortunately, his county did not take advantage of the legislative provision and Dr. Laughinghouse, realizing the necessity of a hospital of some kind, took part with Drs. E. T. Dickinson, K. B. Pace, and W. I. Wooten in the organization of a hospital, feeling that, in time, his county, on closer acquaintance with hospital work, would eventually assume responsibility for the management and support of the hospital.

Another example of an interest not restricted to the narrow field of clinical medicine was his effort to improve the conditions for caring for those unfortunates who find their way into county homes. He saw that in most county homes the number of inmates was so small in proportion to overhead costs that the per capita cost was high, and the quality of service low. As a remedy for this condition, he conceived the idea of a district home, the cost of the construction to be apportioned on a population basis to a group of interested counties, and the cost of maintenance to be apportioned on the basis of the number of inmates cared for from each county from which dependents were admitted. This arrangement would make for an economy of operation, a lower per capita cost, and a greatly improved service. Dr. Laughinghouse drafted an act and his father, who was at that time a member of the General Assembly, had it enacted into law. While no group of counties has, as yet, taken advantage of the enabling act, the time will unquestionably come when the foresight and the humanity of its author will be realized.

As an original stockholder in the Greenville Knitting Mill, the Greenville Manufacturing Company, and the Greenville Building and Loan Association, and as a charter member of the National Bank of Greenville, and the Greenville Bank and Trust Company, Dr. Laughinghouse was prominently identified with the business life of his community.

The Soldier: When the United States declared war against Germany, Dr. Laughinghouse offered his services, and received the commission of Major in the Officers' Reserve Corps. This was in May, 1917. From that time to January 1, 1918, he gave liberally of his time in assisting Colonel J. W. Long, Medical Aid to the Governor, in interesting the physicians of the State in military service.

In January, 1918, he was ordered to report at Fort Oglethorpe for training. From Fort Oglethorpe he was ordered to Camp Forrest, and was placed in charge of the physical examination of twelve thousand men, preparatory to their being sent overseas. On completing his detail at Camp Forrest he was ordered to Fort Sam Houston. At Fort Sam Houston he was put in command of the

recruiting station and directed the physical examination of men who were being enlisted in the military service. After organizing this service, he was placed in charge of the attending surgeons' office, and organized a clinic for giving professional care to the families of officers and enlisted men who were stationed at Fort Sam Houston. While there, he also had command of the medical corps that was on service in the hospital at Kelly Field. From Fort Sam Houston he was ordered to Fort Sill, Oklahoma, and placed in command of Base Hospital 85, and directed to prepare the hospital for overseas service.

On July 31 he was commissioned Lieutenant-Colonel, and shortly afterwards ordered overseas as commanding officer of Base Hospital 85. He was stationed in Paris in command of Base Hospital 85 until January 1919, when he was ordered to turn in all of his equipment to the commissary, and the personnel of Base Hospital 85 was ordered to Angers, to take over the physical property of Base Hospital 47, a Pittsburgh Unit which had been dissolved, and to continue as Base Hospital 85. At Angers, in addition to having command of the hospital, he was given entire command of that district, and that entailed the checking and receipting for an immense quantity of military supplies, and of directing the work of a rest camp for officers, and a large convalescent camp for soldiers. After this work had been completed, officially inspected, and approved, Dr. Laughinghouse returned to the United States, and was granted an honorable discharge.

State Health Officer: Dr. Laughinghouse began his work as State Health Officer October 1, 1926. During the time of his encumbency his official activities have been directed largely to four major objectives, as follows: (1) To procure a home for the State Board of Health in which all of its departments, with the exception of the Laboratory of Hygiene, could be housed; (2) to maintain and strengthen the work of the several bureaus of the board of health; (3) to clarify, enlarge, and intensify the interest of the medical profession and outside agencies in public health work, and to obtain from the medical profession and outside agencies of the State more wholehearted and effective co-operation with the official health agencies; (4) to improve the quality of county health work through the use of a better type of personnel for directing the work of county health departments.

The official organization which Dr. Laughinghouse found upon assuming his responsibilities in October, 1926, has been strengthened through an increase in legislative support, and has been provided with more adequate office facilities. The total appropriation for the Board of Health has been increased from $425,000 in 1926 to $491,470 in 1930.

Immediately on assuming office he began a well conceived program for developing a more wholehearted interest among the doctors of the State in the work of the board of health. Having been so long an active general practitioner himself, being thoroughly familiar with and sympathetic with the problems and viewpoint of

the medical man in the field, he was well fitted for the task which he assumed. So it was that during the first year of his official life he encouraged invitations from medical societies and addressed many of the county and district medical societies of the State.

In addition to the widespread personal appeal, he undertook in another way to open wide the opportunity for the general practitioner to have a larger share in the work of preventive medicine. Dr. F. R. Taylor of High Point was employed to go from county to county, with arrangements having been made in advance, to make thorough physical examinations of all who might be referred to him by the local physicians for incipient and unrecognized disease. The family physicians referring patients were urged to be present at the examinations of those they had referred. The object of this work was twofold: (1) to create a larger popular interest in periodic physical examinations in order that the people might resort to physicians before serious damage had resulted and complete cure was impossible, and (2) to assist the physicians in perfecting their methods for giving periodic examinations when the popular interest should be arroused.

The new state health officer was quick to recognize that the larger opportunity for further progress in state health work lay (1) in improving the quality of local or county health work, and (2) in increasing the number of counties engaging in full-time health service. A better quality of local health work called for a better qualified local health officer. The number of well-qualified health officers was limited.

Dr. Laughinghouse, as soon as the medical school at Duke University was provided for, urged the Dean, Dr. W. C. Davison, to include a Chair of Preventive Medicine and Public Health as a department of the school, and offered the co-operation of the State Board of Health in a plan designed to (1) give a deeper appreciation of the field of preventive medicine to all students of Duke University, and (2) to train an adequate number of health officers, public health nurses and sanitary inspectors to meet the needs of the state.

Dr. Laughinghouse held a commission signed by Edward R. Wiles, Commander in Chief of the Sons of Confederate Veterans, making him Surgeon in Chief of the North Carolina Division, Sons of Confederate Veterans, which commission is dated October 4, 1928.

In January, 1930, Dr. Laughinghouse was elected Vice-President General Alumni Association, University of North Carolina.

Personality: While the world will always put together the alphabet of deeds to spell out personality, and get its concept of character from conduct, nevertheless, a descriptive portrait of the subject, taken from near at hand and without the intervention of the blurring haze of time, may not be inappropriate as a conclusion of this subject.

Charles O'Hagan Laughinghouse was a man of large proportions in body, brain, and heart. Six feet in height and in other outlines in good proportion, he conveyed to even hasty and casual observa-

tion the impression of poise and what poise stands for—reserve strength. He was studious, thoughtful, well-informed, and a keen observer by natural bent plus his professional training. He was an excellent student of that most interesting of all studies, human nature. Out of these qualities of the mind, breadth of vision and foresight were his in exceptional measure.

Such an intellectual background and outlook are related and contributory to certain of character qualities. He was liberal in thought, seeing good and bad as shadow and light in the great picture of life as painted by the Master Artist. His mind, to a remarkable degree, was unfettered by the passion for personal gain, by prejudice and class distinction. While a democrat, he appreciated and admired the many fine characteristics of that sturdy American, Theodore Roosevelt, and venerated the memory of Abraham Lincoln, albeit his father was probably the youngest captain of the Confederate Army. While a Methodist in religion, he could, with equal grace and humility, partake of the Sacraments with Louis Pasteur, the Catholic, or John Wesley, the Methodist. His great interest in human nature and his exceptionally profound knowledge of it, of its weakness and its strength, of its vices and its virtues, made him considerate of all and gentle and tactful in his dealings with the emotional bruises and abrasions of the human nature. And so he had that primary quality of the trinity of virtues—charity. He was an optimist because his mental retina was so much more sensitive to light than to shadow that he saw good in everything and was convinced of its inherent immortality. He had a keen appreciation of those quirks of human behavior which we call humor. He was not so concerned with the deeper and darker meanings of life that he could not see the ripples on the surface. He was an excellent storyteller and his company was always coveted. "The saving sense of humor" is a gift of the gods to him whose soul is not chilled by fear. Courage laughs, but fear knows no merriment.

These intellectual and emotional equalities which the writer has briefly touched upon blended themselves in a stability of purpose that did not veer in its course to the ever-expanding horizon of larger opportunity.

DR. CHAS. O'H. LAUGHINGHOUSE

By

DURHAM-ORANGE MEDICAL SOCIETY

At a call meeting of the Durham-Orange County Medical Society, by the president, August 27, at 8:00 o'clock P. M., the following resolutions were unanimously passed:

1.—The State Board of Health and the North Carolina State Medical Society have sustained a great loss in the death of the executive secretary of the State Board of Health, Dr. Charles O'H. Laughinghouse, and this Society feels a keen personal loss in the untimely passing of such a loyal and representative member of our profession.

2.—We desire to express to the family of the deceased our deepest sympathy and condolence.

3.—That a copy of these resolutions be sent to the family of the deceased, to the North Carolina State Medical Society, and to the North Carolina State Board of Health, and that a copy be engrossed on the minutes of this Society.

Dr. Hunter Sweaney, *Chairman.*
Dr. R. L. Felts.
Dr. W. H. Boone.
Dr. L. S. Booker.
Dr. J. A. Speed.

DR. CHARLES SOLOMON LAWRENCE

Dr. C. S. Lawrence, aged 51, famous surgeon of Winston-Salem, N. C., died at a hospital in Richmond, Va., June 21, 1930.

Dr. Lawrence had been in declining health sometime and went to Richmond for treatment and rest. He was operated on Tuesday, and was thought to be recovering until Thursday night, when he suffered a relapse and grew steadily worse until the end came.

He was a native of Stokes County. He was educated at George Washington University and came to Winston-Salem in 1908 to begin the practice of medicine. In 1919 he founded the Lawrence Hospital of which he had been the head ever since. He was prominent in medical circles, being a fellow of the American Medical Association and of the American College of Surgeons. He also served the North Carolina Hospital Association as president, and also was a former officer of the North Carolina Medical Society.

In addition to being a leader in the medical profession and in civic affairs here, Dr. Lawrence had an enviable military record. He served with the China relief expedition during the Boxer uprising in 1900 and 1901 and also in the Philippine insurrection the latter part of 1901 and 1902. He joined the ambulance company organized by the late Dr. J. W. Long, of Greensboro, during the World War. He was promoted rapidly to the rank of lieutenant-colonel, serving overseas as commander of Base Hospital 61. He returned to Winston-Salem at the close of the war.

Dr. Lawrence is survived by his wife and an adopted son.

DR. HENRY BYRNE MAXWELL

Dr. Henry Byrne Maxwell, for 26 years one of the leading physicians of Columbus County, died March 27, 1931, in a Wilmington hospital, from heart failure.

Dr. Maxwell was born in Whiteville, January 10, 1873. He was educated at the University of Maryland and returned to Whiteville to practice medicine. He served as captain in the medical corps during the World War.

DR. J. D. MAYNARD

Dr. J. D. Maynard, well-known Wadesboro physician, died January 28, 1931.

Dr. Maynard was a native of Orange County, and received his education at the University of North Carolina. He had been living in Wadesboro for 14 years, and had a large practice there. He had practiced at Knott's Island before coming to Wadesboro. During the World War he served in the medical corps of the army. He was a member of the Wadesboro Civitan Club, and a most valuable citizen.

DR. D. C. McIVER

Dr. Dewitt C. McIver, aged 61, a widely known citizen of Maxton, died there December 4, 1930, after an illness of six months. Dr. McIver was born near Sanford, Lee County.

The funeral was conducted from the Presbyterian Church of Maxton, of which he was a prominent officer.

DR. JOHN D. McRAE

Dr. J. D. McRae, prominent Asheville physician and X-ray expert, died at an Asheville hospital, September 6, 1930, from injuries sustained when his car in which he was riding skidded and overturned on the national highway near Black Mountain, N. C., dying a few minutes after being brought to the hospital.

Dr. McRae was a native of Fayetteville, son of James C. McRae, former dean of the law school of the University of North Carolina and former Associate Justice of the Supreme Court of North Carolina. He was a nationally known authority on roentgen ray work. He was formerly head of the X-ray department at Oteen Hospital, later resigning his position with the Government to start practicing in Asheville. He leaves a widow who was badly injured in the accident that caused his death, and a son, Dr. J. D., Jr., of Asheville.

DR. JOHN D. McRAE

By

KNUD HARTNOCK

U. S. Hospital No. 60, Oteen, N. C.

The entrance of the United States into the World War in the year of 1917 found Dr. McRae down in Tampa, Florida, where he was practicing general medicine and beginning to attract attention to himself as a specialist in roentgenology.

Like so many others, he heard his country's call and volunteered his service; and like so many others, he was rewarded with the exalted rank of a first lieutenant.

He did not remain a lieutenant very long, however, and he was a lieutenant-colonel at his death.

His first assignment was to Baltimore; there an X-ray course had been organized, and there under the personal guidance of Dr. Raettjer, he perfected his knowledge of roentgenology.

His course finished, he was sent to Camp McClellan, which is near Anniston, Alabama, and was assigned to the hospital as an X-ray specialist.

Already then the powers that were, had their eyes on him, and recognized him as a coming man, for soon he was sent to Camp Greene, where a base hospital was being established, and to Dr. John McRae belongs the credit of organizing the X-ray department of that base hospital, training the personnel and bringing order out of chaos.

In August, 1918, the base hospital and Dr. McRae with it, sailed for France and landed at Brest.

It was not his good fortune to be sent to the front, the cruder work of reading the emergency roentgenograms could be left to less experienced men. He was needed back of the lines, where men's chances of future health and future usefulness so often depended upon the real X-ray specialist's expert judgment and technical skill in reading plates.

He did his work—and that he did it well, I need not say—at the hospital center near Paris for seven months; then his outfit was returned to the United States, and he was assigned as chief roentgenologist right here at Oteen.

This was in 1919.

In 1920 the army relinquished control over the Oteen Hospital, and it passed into the hands of the U. S. Public Health Service.

Dr. McRae did not accept transfer into the Public Health Service's Reserve Corps; he was an independent man, accustomed to be his own commanding officer; so he took the plunge, which it takes courage to take, and established himself as an X-ray specialist here in Asheville, and his ability, his trustworthiness and his genial good nature soon won him recognition and a large clientele.

He did, however, not sever his connection with Oteen entirely; he accepted a part-time appointment as an X-ray consultant and remained so for nearly five years.

This period made him into something he had had no occasion to be before; but into something, which he was eminently fitted to be; it made him a teacher.

He had a rare gift for teaching; many a budding chest specialist came to Oteen for training, and Dr. McRae took him in hand and taught him at least the cardinal points of X-ray reading. Many an ambitious young doctor came to study X-ray as a specialty, and they owe what they know to him, at least he laid the foundation for their knowledge.

He taught, not like the professional teacher, who from his lofty catheder hurls information impersonally at those who may want to absorb it; he taught as a friend; he was not the professor, to whom homage is due; he was simply the big brother, the older colleague, who told the younger colleagues what he knew. He took them by the hand and guided them through the intricacies of X-ray technique, never

losing his patience, never correcting impatiently or making them feel small, when they made mistakes.

He taught them much, for he knew much.

And his gentle, friendly way of teaching gives us a clue to find that which was his outstanding characteristic: his big, wide open heart.

His heart had room for much and for many.

He loved his dogs; he loved even the old furniture, which he and his wife started housekeeping with many years ago, and never have I seen love and affection between a man and his brothers and between a husband and his wife more young, more fresh, more unaffected and so unbreakable as in his house.

He was a gentleman and a gentle man. His smile was slow and gentle, and gentle was his voice, low and well modulated as a southern gentleman's voice should be.

We shall miss John MacRae. The sick will miss him, the poor and needy will miss him, his help and his skill was theirs for the asking.

Science will miss him; he was to science a faithful servant.

Medicine will miss him; he used his knowledge for mankind's good.

The profession will miss him; he was one of our outstanding men.

His brothers, his children and his wife will miss him; there was nobody and nothing like John.

I shall miss him—he was my friend.

Goodbye, John MacRae; may we sometime, through God's mercy, meet again.

RESOLUTIONS ON THE DEATH OF DR. JOHN D. MacRAE

ADOPTED BY THE BUNCOMBE COUNTY MEDICAL SOCIETY SEPTEMBER 7, 1930

Destiny has removed from our midst our president, our colleague and our beloved friend, Dr. John D. MacRae.

Our finite minds can not grasp the why of his going, nor can we appreciate its justice. We can but acquiesce in the workings of Providence.

We deplore the loss of our president, the first who has died in office: we deplore the taking away of a radiologist of proven worth and of outstanding ability: but more than this, we grieve individually and collectively at the loss of a friend; at the loss of one of the gentlest and kindliest individualities that we have known.

If John MacRae had an enemy among us, we do not know him. If one of us wished him ill, his name has never been spoken. Fearless, faithful and true, he pursued his course in our midst, commanding the affection of many and the respect of all.

> "Countless are the high qualities of heroes, but one there is set on high, far transcending all. His it is, who in whatever

work his hand finds to do, steers his course with righteousness of heart."

Such a man was John MacRae. We mourn his loss, and we know full well that his going has left a void that will not be filled.

THOMPSON FRAZER, *Chairman*,
JOSEPH B GREENE,
PAUL H. RINGER.

DR. JOHN D. MACRAE

By

CHAS. C. ORR

Dr. John D. MacRae was killed in an automobile accident near Asheville, North Carolina, September 6, 1930, death being due to a fractured skull and internal injuries.

Dr. MacRae was born at Fayetteville, North Carolina, March 10, 1874. He was the son of James C. MacRae and Frances Hinsdale MacRae of Fayetteville, N. C. His father at one time was Dean of the Law School of the University of North Carolina and formerly Associate Justice of the State Supreme Court.

Dr. MacRae attended the public schools of Fayetteville, N. C., later entering the Peabody Normal College of Nashville, Tenn. He attended the Medical School of the University of Nashville, Tennessee, from which he graduated with the degree of M.D., in 1896. After graduating Dr. MacRae went to Arkansas where he was in general practice for a year or more. He returned to Fayetteville, N. C., where he practiced for several years, afterwards going to Tampa, Florida. In 1917 he entered the service of the U. S. Army and was commissioned as First Lieutenant. He was assigned to the X-ray department in which work he became most efficient. He served at home and overseas. He was honorably discharged from the army at the close of the war with the rank of major. After the armistice Dr. MacRae came to the Veterans Hospital at Oteen, N. C., taking charge of the X-ray department of that institution. After serving the Veterans Hospital for one year he resigned his position and opened offices at Asheville, N. C., limiting his work to X-ray diagnosis and radium and X-ray therapy. For a number of years he was retained by the Government as a consultant in X-ray work at the Veterans Hospital. Dr. MacRae was one of the pioneer leaders in roentgenology, and was nationally known as an X-ray expert. As a roentgenologist he enjoyed a large practice, and his unusual experience, excellent judgment and clearness of diagnosis won for him an enviable reputation. He was a clear and forcible writer and his articles were always read with pleasure and profit. He was asked to become editor of the department of radiology of the Journal of Southern Medicine and surgery, a position which he filled most capably up to the time of his death. Often requests came to this journal for permission to reprint his editorials in other journals—an honor to any author.

Dr. MacRae believed in organized medicine. He attended the various medical meetings with an open mind, ever ready to learn and also to contribute from his experience and study any knowledge that would advance science in that specialty in which he was so much interested. He was a member of the American College of Radiology, also the Radiological Society of North America, for which society he was Councilor for the State of North Carolina. He was a member of the American Medical Association, the North Carolina Medical Society, the Buncombe Medical Society, the National Tuberculosis Association, the Tri-State Medical Society and the Southern Medical Association. He was President of the Buncombe County Medical Society at the time of his death.

Dr. MacRae was a member of the Episcopal Church and a Mason. He was a good citizen, took an interest in civic affairs, was kind, gentle and courteous, and was loved by his fellow practitioners and all who knew him. His untimely and sudden death brought sadness and sorrow to his friends and a sense of irreparable loss to his community.

DR. JAMES E. MILLER

Colonel James E. Miller, a former inspector-general and chief surgeon of soldiers' homes, for several years commanding officer of the U. S. Hospital at Oteen, died October 16, 1930.

Dr. Miller was born in Bladinsville, Ill., October 27, 1861, and entered the army in 1898. He was 70 years of age at the time of his death.

DR. CHARLES AUGUSTUS MISENHEIMER

Dr. Chas. A. Misenheimer, age 73, died at his home, 212 North Tryon Street, Charlotte, N. C., June 23, 1930. He was one of Charlotte's best-known physicians and was the oldest in point of years of practice at that place.

Dr. Misenheimer was born in Cabarrus County near Mount Pleasant on December 14, 1856. He was graduated from University of North Carolina in the year 1879 and received his medical degree from the University of New York in 1883. He began the practice of medicine at Pioneer Mills where he remained for five years. In the year 1888 he removed to Charlotte where he was an active practitioner of his profession for forty years.

Dr. Misenheimer was an active member of St. Mark's Lutheran Church on North Tryon Street and was buried from that church. He was married to Miss Nannie Barnhardt of Cabarrus County in 1880 who, together with four sons, survive. He was an Honorary Fellow of this Society.

DR. C. A. MISENHEIMER

By

Dr. John R. Irwin

A book might be written concerning the life, experiences and achievements of Dr. Misenheimer. Such being true, it is obvious

that a brief sketch can furnish only an outline and a suggestive comment upon the many things which would properly command detailed attention.

And yet, it is a highly grateful task to record and estimate, even in an imperfect and brief way, a characterization and summary of the life and services rendered the profession, the community and humanity by this physician. His name is associated with the best attainments in the profession and the best citizenship of the state.

Few men attain the age of seventy odd years without some warning that they are mortal and that the grave is waiting for them. These warnings came to him early in 1930, with breathlessness and pain in the chest, and the asthma, dyspnoea and heart-rending agonies of angina were too much for a tired heart, and death came to his relief June 23, 1930, at his home in Charlotte, after six months' illness of heart trouble.

Surviving him are his widow, Mrs. Nannie J. Misenheimer, three sons, J. J. Misenheimer, C. A. Misenheimer, Jr., and Dr. Tom M. Misenheimer, all of Charlotte, N. C.

History shows very few instances of men who became useful and famous, whose early lives were not rooted in the soil, and this saying has become a truism when applied to America.

Dr. Charles Augustus Misenheimer, son of John Misenheimer and Sophia Barringer Misenheimer, was born on the Misenheimer plantation in Cabarrus County, near Mount Pleasant, December 16, 1856. He grew up in this country district, attended the rural schools of that community and took his literary course at Mount Pleasant College.

Realizing that the profession of medicine opens to its devotees an exceptionally broad range of usefulness, he attended and was graduated from the Medical Department of the University of New York in 1882. He began the practice of medicine at Pioneer Mills, N. C. The following year he was married to Miss Nannie Barnhardt, daughter of Col. John A. Barnhardt and Adaline Melchor Barnhardt, of Pioneer Mills. He built up a large and growing practice at this location, but, seeking a broader field of usefulness, he moved to Charlotte in 1888, and practiced in this city until his last illness. Among his important public services, he assisted in the organization and management of the Charlotte Private Hospital, and Elizabeth College, and was college physician while that institution was in operation in this city.

He was one of the organizers of and stockholders in the Barnhardt Manufacturing Company of Charlotte. He inherited the principles of thrift and frugality from his teutonic ancestors, and by industry and judicious investments achieved a comfortable competency.

Dr. Misenheimer was a Lutheran in faith. A member and staunch supporter of St. Mark's Lutheran Church.

He was a member and regular attendant of the Mecklenburg County Medical Society, the North Carolina Medical Society, and the American Medical Association. In literary work, he prepared

and read papers before the local medical society on sanitation and medical and surgical subjects.

He was a general practitioner, but had a decided preference for surgical work, and had duplicated most of the major operations and surgical procedures. He was always optimistic of results, and no case was ever so serious or far-gone that his fearless initiative was not willing to undertake anything that might offer the slightest prospect of cure, or even relief.

His was a distinctive personality, of wondrous vitality, his a career of service inspired by high ideals, conscientious devotion to duty, and of faithfulness in all things that leaves a name long to be respected and honored. His word was but the expression of his sincerity and nobility of character, and exercised a wide influence for good upon the profession and community where he lived and practiced.

Dr. Misenheimer was endowed with clearness of vision and thoroughness of judgment that made his opinions of the highest value. His name carried weight and prestige in medical profession. He had a high conception of the obligations resting upon the physician, and the ethical standards set by him had a most wholesome influence upon the profession throughout this whole section. He was a man of clinical acumen, acknowledged ability and usefulness, and to those who knew him most intimately, one of the best and truest friends. Perhaps his most distinctive characteristic was dependability.

Many business and professional men, as a rule, have a commercial interest in their clientele. He occupied a different relation to his patrons from that of any of these. He had practiced more than forty years for many families in this community; was present at the births of their children, had taken them through their teething, measles, mumps, whooping cough and scarlatina; stood by many mothers in their most serious times, when a mistake or bad management on his part would have left a household bereft of its dearest and best friend—the mother. Is there nothing between a doctor and that family except a cold business relationship? He who thinks so knows little about the real fees that a doctor receives—the love, confidence and esteem of those whom he has helped in the direst extremities. Dr. Misenheimer's name, and the good he has done, are alike imperishable. His record of an honorable career adds luster and dignity to the profession to which he belonged. He was a fine type of the successful physician who lives up to the highest ideals of his calling. In all his intercourse with his fellowmen, he was straightforward, honest and direct. He was a pattern of sincerity in all he said and did. With him it was not doing always the thing he liked to do, but liking the thing he had to do.

Think how much love, wisdom, patience, learning, merit, modesty and goodness went into the making of this doctor. His friends and patrons will garland him with wreaths that do not fade, and laurels that never die.

The wisdom, skill, talent and penetration of his mind remained as vigorous up to his illness, as in the meridian of his life and his will-power and resistance held death at bay for six long months.

In Charlotte and other communities, when the hour for his going struck, a rude shock was felt; but the memory of his companionship, kindness and usefulness is not likely soon to be dissipated.

The spring puts forth the flowers and plants, the summer matures them into lusty strength, the autumn garners their fruition, and the winter gathers them into the tomb of existence. And yet, there is no death. What men call by that name is simply change—change into another form of existence to carry on the scheme of universal wisdom.

When our friends have crossed the river, we are somehow bound to them by the cords of a deathless love. From the voiceless lips of the unreplying dead there comes no words, but in the night of death, hope sees a star, and listening, love can hear the rustling of a wing. We can scarcely realize that they are gone. The looks, the forms, the voices, the smiles of the dead are still with us. We feel their mysterious nearness. Love still teaches us to love and remember them. In every tear that we shed, in every sigh that we heave, we have so many proofs in the heart itself, that the dead, whose memory we so fondly cherish, still live beyond the grave. Dying is the throwing open the door, that the bird may fly out of his netted cage and be heard singing in higher flights and in divine realms.

When our friends are taken from us, our bereavement is a call, not to bitter weeping, but to new duty.

Dr. Misenheimer's mantle falls upon his youngest son, Dr. Tom M. Misenheimer, a rising young physician of Charlotte.

This sketch and imperfect tribute is from a friend to a friend.

DR. JOHN CHRISTIAN MONTGOMERY

Dr. John C. Montgomery died suddenly at his home in Charlotte, ————————, 1931.

Dr. Montgomery was 62 years of age and had practiced his profession in Charlotte for 40 years. He was nationally known as an authority on anesthetics, and was the inventor of a device for administering them. His writings on the subject of anesthetics were widely quoted.

Dr. Montgomery was a graduate of Trinity College, Durham, and of New York Medical College. He was a member of many medical societies and a steward in the First Methodist Church, and was an Honorary Fellow of this Society.

IN MEMORIAM

DR. JOHN C. MONTGOMERY

1869-1931

By

Dr. J. M. Northington

(*In Southern Medicine and Surgery*)

He left us suddenly, an urgent early morning call, and he was gone. So full of life and action, he rests in peaceful, dreamless sleep.

For forty years he walked among us. Three generations felt the touch of his ministering hands. He was a general practitioner or as he said, "a regular family doctor." He loved the daily visits in the homes of his patients. He was a genial doctor and his cheery manner in the sick room did good like a medicine. He looked on the bright side of circumstances. If there was no bright side, he shined up one of them with a few touches. He was sympathetic and helpful with his patients and they clung to him in every great time of need.

In the profession, he had a host of friends, for he always showed himself friendly. At any gathering of the doctors, he was at home and made others feel the same way.

He was a jolly companion on a tedious trip and a most efficient shock absorber along the road of every-day living.

He was a society man and took an active part in the Charlotte Academy of Medicine which was revived under the name of the Charlotte Medical Society, which in turn merged into the Mecklenburg County Medical Society.

Abroad, he was an Honorary Fellow of the State Society, a member of the Southern Medical Association and the American Medical Association.

For many years he specialized in anesthesia along with his general practice. He had his own way in giving ether by the drop method which was both safe and satisfactory. He did not think much of the newer methods of local, regional and spinal anesthesia, but considered that ether by the drop could hardly be improved upon in a major operation.

As a man he was a prince of good fellows. In spite of these democratic days of leveling down, he stood above the rank and file of men. He was one of those meet-him-once-and-know-him-the-rest-of-your-life kind of people.

He was a business man as well as a doctor. He got the fee if it was possible, and oftentimes when it was not. He knew the value to the patient of paying the doctor. Many of us overlook this important matter. He understood that a patient's convalescence would be more rapid and he would stay well longer if the fee was paid promptly.

We miss him sorely as a friend, as an associate, as a counselor and as a helper in the steep places.

> "Silent here—for love is silent gazing on the lessening sail;
> Silent here—but far beyond us many voices crying, 'Hail.' "

DR. W. J. MOORE

Dr. W. J. Moore, for thirty years a practicing physician of Asheboro, age 55 years, died April 3, 1931, after an illness of several years.

DR. W. J. MOORE

By

C. S. Tate, M.D.

Dr. William James Moore died at his home in Asheboro, Friday afternoon, April 3, 1931, following an illness of almost twelve years, suffering from pernicious enemia. Tho' until the first of February he kept up the practice of his profession, giving it up gradually from year to year.

He was born on August 3, 1865, in Sandy Ridge in Stokes County. Was educated at Oak Ridge and old Trinity College in Randolph County, graduating there in the late eighties. The following year he entered medical college at Baltimore at the College of Physicians and Surgeons, at which place he graduated in the year 1893.

After graduation he began practicing in his home county, afterward going to Davidson and Randolph, at which place he practiced his profession about 33 years.

He was first married to Miss Mamie Grazier of Randolph County. A few years after the death of his first wife he was married to Miss Mattie Porter of Asheboro who, with the following sons and daughters, survive him:

Harold P. Moore of Charlotte, Wallace J., Mrs. C. J. Lovett, Evelyn, Coleman, and David of Asheboro.

He had been a member of the State Medical Society for many years, and was a most zealous worker for his own county Medical Society, had served as Secretary of same for a number of years.

The greater part of Dr. Moore's life had been passed in industrious, faithful practice of his profession, a service of administration which had few counterparts.

He had builded himself a splendid abiding place in the esteem of the people of his community, where he had labored for more than thirty years.

No eulogy can adequately describe the profound influence which he exerted as physician, as citizen, as friend.

In his various public contacts there was unfailing determination to adhere to fine standards, and an unwavering interest in the welfare of others was a characteristic trait. He had many loyal, faithful friends who are saddened by his passing.

DR. GEORGE DILLON MORRIS

Dr. Geo. D. Morris, 35 years old, died of hemorrhage of the stomach, at a local hospital in Goldsboro, N. C., on April 16, 1931.

Dr. Morris was born in Florida, but came to Goldsboro to live when a small boy. He graduated at the Goldsboro High School, University

of North Carolina, and the University of Pennsylvania. In 1926 he began the practice of his profession in Goldsboro, where he has since had a large practice in children's diseases.

He is survived by his wife, who was Miss Louise Powell. He was a member of the Catholic Church.

DR. JOHN P. NICHOLSON

Dr. John Pinkney Nicholson died at East Bend, N. C., November 11, 1930, at the advanced age of 94.

Dr. Nicholson had practiced medicine 64 years and was one of the best known physicians in the north-western section of the state. He was also a licensed minister of the Methodist Church, South. He was a member of Norfleet Camp, United Confederate Veterans.

DR. SAMUEL TIMOTHY NICHOLSON

Dr. J. T. Nicholson, aged 75 years, died at his home in Washington, N. C., May 23, 1930.

Dr. Nicholson was a graduate in medicine from the College of Physicians and Surgeons, now University of Maryland, Class of 1881, and immediately located at Washington where he spent the remainder of his life. He was an Honorary Fellow of this Society.

DR. JOHN A. PATTERSON

Dr. John A. Patterson, well-known Concord physician, died in the Concord Hospital May 17, 1930, from a kidney affection. Dr. Patterson was an alumnus of Wake Forest College and the University of Richmond, and had practiced medicine in Concord for seventeen years.

He was actively identified with various civic affairs and was especially interested in political matters.

DR. BENJAMIN F. PEARCE

Dr. Benjamin F. Pearce died at Raleigh, August 12, 1930, and the funeral was held at his home at Princeton. Dr. Pearce was 30 years old, and was a graduate of the University of North Carolina.

DR. R. S. PEARCE

Dr. R. S. Pearce, former Mayor of St. Petersburg, Florida, died at his home in Brevard, N. C., June 1, 1930. Dr. Pearce was a native of Fayetteville, N. C., but for 20 years had made his home in St. Petersburg, Fla. He removed from St. Petersburg to Brevard, N. C., where he lived until the time of his death.

DR. D. R. PERKINS

Dr. D. R. Perkins of Marshville died at Monroe, November 12, 1930, after an operation for stomach trouble.

Dr. Perkins was born in South Carolina 52 years ago. In 1902 he was graduated from the Baltimore Medical College and located in

Union County for the practice of medicine. He later moved to Marshville, where he lived until the time of his death.

DR. J. A. PINNIX

Dr. J. A. Pinnix, 84 years of age, died at his home near Corbett, N. C., March 30, 1931.

Dr. Pinnix was a Confederate veteran and was a highly regarded citizen of his community.

DR. H. H. POWELL

Dr. H. H. Powell, aged 45, of Statonsburg, N. C., died suddenly of a heart attack at his home at that place October 14, 1930.

Dr. Powell was born in the year 1886, graduated in medicine in 1911 and was licensed by the State Board of Examiners also in 1911.

DR. THOMAS JOSEPH PROFFITT

Dr. Thomas Proffitt, well-known practicing physician of Elk Park, N. C., died in the Banner Elk Hospital, September 24, 1930, after having been injured in an automobile accident which occurred near his home town.

Dr. Proffitt was widely known as a popular and skilled physician, and has numerous relatives in Watauga County.

DR. CHAUNCEY M. RAKESTRAW

Dr. Chauncey M. Rakestraw died at Red Springs, N. C., January 10, 1931, after an extended illness of more than two years.

He was 57 years old, a graduate of the University of Cincinnati and one of the leading surgeons of the Carolinas until ill health forced him to give up his work.

DR. JOSEPH RING

Dr. Joseph Ring, 80 years of age, died at his home in Elkin, N. C., April 14, 1931, of angina pectoris, from which he had been a sufferer for many months. Death was not unexpected, his condition having been grave for some time.

Dr. Ring had been a prominent figure in the professional, business and civic life of Elkin since he located there immediately after graduating from Jefferson Medical College of Philadelphia, Penn., in 1872. He was a member of the Methodist Church, of the Masonic fraternity, the Kiwanis Club and of the Knights of Pythias. In 1873 he was married to Miss Mary V. Horney, who, together with a number of children, survive.

DR. WISCONSIN ILLINOIS ROYSTER

Dr. W. I. Royster, at the age of 85, died at his home in Raleigh, N. C., October 24, 1930, after an illness of only three days, pneumonia being the cause of his death.

Dr. Royster was born in Raleigh in the year 1845. He passed his eighty-fifth year last September, and until that time had the impulse towards vigor whirh belongs to this remarkable family. He came of English stock which migrated to America in 1700. His real life in Raleigh began in 1869 when he began the practice of medicine. He touched Raleigh life at every point, was professor of the principles and practices of medicine in Shaw University from 1885 to 1912. The character of this school was such as to make it known throughout the nation. On account of the war between the states Dr. Royster did not have the advantage of a classical education, but, in spite of this, he was one of Raleigh's best educated men. He leaves two sons, Dr. Hubert A. Royster, noted surgeon of Raleigh, and Frank Royster of Cleveland, Ohio.

DR. W. I. ROYSTER

By

HUBERT B. HAYWOOD, M.D., Raleigh

Dr. Wisconsin I. Royster, after almost fifty years of practice in Raleigh, died October 25, 1930, at the advanced age of eighty-five years. In 1915, at the age of seventy years, he retired from practice.

The life of this eminent physician is a noble one in the good that he did, and is notable in its praiseworthy accomplishments. It is profitable to us to open the book of his life, and to read about an able and good man, and what he achieved.

Dr. Royster was born in Raleigh, N. C., on September 24, 1845. He was of English descent, the first of his forbears coming to this country about the year 1700 and settling in Mecklenburg County, Virginia.

Dr. Royster's father was James D. Royster, who was born in Raleigh in 1807, and who, during the greater part of his life, was a paper manufacturer. His mother was Mary Smoothley Ashley of Wake County. Dr. Royster was the last survivor of the nine children born to this union. He came of a line of cultured and cultivated people.

Dr. Royster's early education was received at Lovejoy Academy, which stood where the Governor's Mansion now stands. Many distinguished North Carolinians, who were his contemporaries, received their training at this institution.

The drama of the Civil War unfolded itself into the life of this youth and interrupted his education. He entered the office of General Richard Gatling, Adjutant General of North Carolina, and served there with distinction until Lee's surrender at Appomattox closed the door of hope for the survival of the Southern Confederacy.

With fortitude and determination he faced the bleak days of reconstruction and poverty in his state. The noble service of our gallant and courageous Confederate surgeons inspired him to dedicate his life to the practice of medicine. In 1865 he began to study the art and science of medicine under the preceptorship of Dr. E. Burke Haywood of Raleigh.

In September, 1866, he entered Bellevue Hospital Medical College in New York, and in 1868, after diligent application, having thoroughly mastered in a distinguished manner the subjects offered in his course, he received his medical diploma.

He served for one year as an intern in the Lake Mahopac Hospital, Putman County, New York.

He returned to Raleigh in the spring of 1869, and established himself in the general practice of medicine. Success came to him. His prestige and practice grew increasingly with the general recognition of his skill, sagacity and humanity.

Dr. Royster was an Honorary Fellow of the State Medical Society and one of the founders of the Raleigh Academy of Medicine, of which body he served as the first secretary, and at his death was the sole surviving charter member. He was Professor of Medicine in the University of North Carolina during the years 1902-1910. He was likewise Professor of the Principles and Practice of Medicine in the Leonard Medical School of Shaw University during the years 1885-1912.

His skill as a teacher is attested by the successful physicians in this and other states who learned the art of medicine from him. Their love and admiration is indeed a more lasting memorial than one fashioned by hands.

Dr. Royster was happily married on January 28, 1871, to Miss Mary Willis Finch of Franklin County, N. C., and to them were born four children, of whom two now survive—our well beloved and honored surgeon, Hubert Ashley Royster of Raleigh, and Frank Wills Royster, a public accountant of Cleveland, Ohio.

A third son, James Finch Royster, Dean of the Graduate School of the University of North Carolina, died last year. Death chose a shining mark, and the University suffered an irreparable loss.

Dr. Royster's skill as a diagnostician was recognized by his medical contemporaries and the people of his community.

It was an established fact that he gave the best of his brain and heart to the sick entrusted to his care. Not only were his cases studied with meticulous care, but there was a sympathetic and kindly understanding of the problems that faced each patient. He assiduously cultivated his mind by study and reading, the scope of his knowledge extending not only into the realms of scientific work, but also into the world of literature and languages. His life in Raleigh will always be an inspiration to those who knew and loved him. His faith was sublime.

How appropriate it was that Tennyson's immortal "Crossing the Bar" was sung at his funeral! He would have it so.

"Sunset and evening star, and one clear call for me.
And may there be no moaning of the bar
When I put out to sea;
But such a tide as moving seems asleep,
Too full for sound and foam,
When that which drew from out the boundless deep
Turns again home.

"Twilight and evening bell, and after that the dark;
And may there be no sadness of farewell
When I embark;
For throughout the bourne of time and place
The flood may bear me far
I hope to see my pilot face to face
When I have crost the bar."

DR. O. P. SCHAUB

Dr. O. P. Schaub, 55, one of Winston-Salem's best known physicians, died in a hospital there September 8, 1930.

Although Dr. Schaub had been in declining health for two years, he was able to direct his attention to his practice and was at his office when stricken.

Dr. Schaub was born in Forsyth County, and spent his entire life there, with the exception of 17 years spent as a practicing physician at Roxboro. He was educated at Cornell University and at Baltimore Medical College.

Dr. Schaub was prominent in civic and fraternal affairs, being a Kiwanian and a Mason.

He is survived by his wife and three children.

DR. J. EMMETT SEBRELL

Dr. J. E. Sebrell, aged 70, died suddenly of angina pectoris at his home in Charlotte, N. C., April 4, 1931.

Dr. Sebrell received his doctor of medicine degree from the Medical College of Virginia in the year 1882. He had a medical and business career extending over many years in North Carolina and Virginia, having practiced medicine for 35 years. The last few years of his life were devoted to life insurance.

DR. PAUL SMITH

Dr. Paul Smith, 27, of Pikeville, died in a Wilmington hospital August 3, 1930, from meningitis brought on by injuries received in an automobile accident near Wilmington, July 3. He had practiced medicine in Pikeville for several years, and was a member of the Pikeville Methodist Church.

DR. W. N. TATE

Dr. W. N. Tate, 85 years of age, for more than 50 years a practicing physician of the Mebane community, died at his home at that place, January 26, 1931.

Dr. Tate was one of the oldest practicing physicians of North Carolina, and was well known throughout a large section. He retired from active practice two years ago.

He received his early education at the old Hughes academy near Hillsboro and studied medicine at Louisville Medical College.

He joined the Confederate Army at the outbreak of the war at the age of 16, and was with Lee when the Confederate General surrendered at Appomattox.

This aged physician had been an Elder in the Cross Roads Presbyterian Church for 50 years, and had served as clerk of the session for 38 years.

He married Miss Fannie Pinnen 43 years ago, who survives him. He had no children.

DR. CYRUS THOMPSON

Dr. Cyrus Thompson, age 75, one of North Carolina's best known physicians, died of pneumonia at his home in Jacksonville, N. C., on November 21, 1930.

Dr. Thompson was born in Onslow County, on February 8, 1855, the son of Franklin and Leach Brown Thompson. He was a student at Randolph-Macon College and later at the University of Louisiana. He was graduated in medicine from Tulane University in 1878. He was licensed by the State Board of Examiners in 1889 and became a member of the Medical Society of the State of North Carolina in the year 1905.

Dr. Thompson was one of the most active members of the State Society, was at the time of his death a member of the State Board of Health, and was past president of the North Carolina, the Tri-State and the Seaboard Medical Societies. He served as Secretary of State from 1897 to 1901. He married Miss Florence Garland Kent of Richmond in 1883, from which union eight children were born, all of whom survive.

DR. CYRUS THOMPSON

By

Dr. E. G. Moore

"There is one glory of the sun, another glory of the moon, and another glory of the stars; but one star differeth from another star in glory."

The luminaries which have shone their lights in the firmanent of this Society, according to the observations which have been permitted me, have been typical of and proven true to that standard, as set forth in this declaration of Divine authority. Without heraldry or pomp of power, the medical profession has given to the state many illustrious names, whose services to the profession and the state, entitle them to a rank of favor and equality with the first fruits of any of the professions or industries with which North Carolina has been so signally blessed. Whether in public relations or in private counsel in the chambers of the sick, they have rendered valiant and heroic service, and deserve the respect and applause of a citizenship no less worthy than any other sect or profession of men.

Real genius only crowns here and there; special talent and outstanding gifts are not the heritage of the average man, and the ordinary and commonplace among us, whatever may be their aspirations, cannot attain the altitudes of speech or endeavor so generously assigned to the select and the few.

With no purpose to overestimate and no desire to undervalue the character and qualities of those who actively engaged in the deliberations of this Society, and for whom we now assemble to pay respect to their memories and tribute to their characters, I feel that I can safely say that the name of Cyrus Thompson led all the rest. I shall attempt no resumé of his activities, no eulogy of his life, for others will do that in a far happier expression than I can hope to do, but the grace in my heart is warm and true, for I feel that I too enjoyed his esteem and friendship.

He was an unique personality in appearance as well as speech, and whether you willed it or not, you were instinctively drawn towards him, and he grew upon you in interest and attractiveness. He was forceful and convincing, without arrogance or duplicity; an opponent in measures without bitterness, and a modest friend without guile. He possessed a true philosophy of life, but scintillated it here and there with an abundant sense of humor, which captivated and pleased.

His sarcasm was of a lighter vein and gave no offense, and his lance was dipped with no venom and bore no malice.

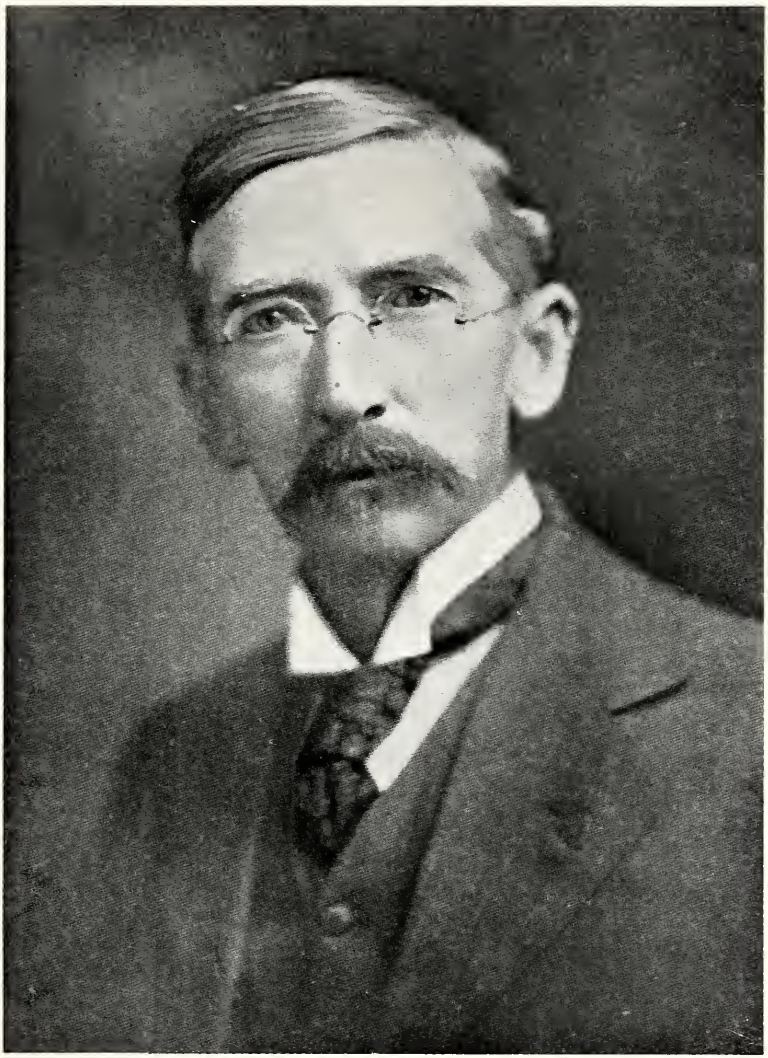
He dispensed cheer and gladness wherever he went, and his chiefest joy was found in service rendered to others.

He was an outstanding remnant of the old school of the "Country Doctor," assuming largely the traits of William McClure, and yet he kept fully abreast with modern ideas and newer things. He was a splendid talker and a good listener and enlivened all assemblages with which he associated.

His attitude towards life weaved a new story and he whispered a new song of cheer and gladness, as he coursed his way along the paths of professional service or engaged in fraternal relations with his brethren. He was tender in heart and religious in purpose; feeding his soul on the beauties of nature and devoutly dwelling in the hope of Heaven.

He suffered no depression and entertained no doubts; but with a sublime faith he trusted in the wisdom of God and sought to follow in the footsteps of his Master.

Death for him had no terror; he was ready for the transition, and with a gladsome smile and a wave of the hand, he said farewell to the world, and hail to the eternal light which shineth from the other shore.



DR. CYRUS THOMPSON

DR. CYRUS THOMPSON

Jacksonville, Onslow County, N. C.

By

L. B. McBrayer, M.D.

Dr. Cyrus Thompson was born February 8, 1855, on his father's farm in Richlands Township, Onslow County, which had been owned and occupied by the Thompson family since 1760, when his great grandfather, John Thompson, came over from Ireland and settled there. He lies buried on a little knoll in the family cemetery facing the old home where he was born, and the stately cedars keep the long vigil. He died of pneumonia at his home in Jacksonville, November 20, 1930, at eight o'clock in the evening. He had his onset with the initial chill while attending a patient in confinement. He remained with his patient until the delivery was completed, which also completed for him the practice of medicine and his earthly career.

Dr. Thompson took his academic work at Randolph-Macon College, and graduated from that college in the class of 1876. He attended the University of Virginia Medical School and the Medical School of the University of Tulane, where he graduated in medicine 1878. In the parlance of educators, these two statements constitute what is termed Dr. Thompson's educational advantages, but not so: these were only the preparations of Dr. Thompson for the wonderful education that was to follow. Dr. Thompson continued to be a student so long as he lived. A student of literature, a student of men, a student of the times in which he lived, a student of medicine.

Following his graduation, he returned to his home and began the practice of medicine among his people. The homes were widely separated, and, while the people lived comfortably, money did not circulate freely, and at times not at all, so that Dr. Thompson's income was not what he needed nor what he deserved, and at the end of five years, in 1893, he abandoned the practice of medicine and taught school in the little village of Richlands for two years, following which he conducted his farms and in some important circles was considered a farmer, particularly by the Farmers' Alliance, an organization which grew to large proportions largely because of the financial depression which existed at that time, particularly among farmers—perhaps somewhat similar to conditions which exist today. Dr. Thompson was prominent in this organization, and with Col. Polk was considered its recognized leader. Col. Polk's untimely death placed greater responsibility on Dr. Thompson, and he became the outstanding leader of the Farmers' Alliance. This organization was non-partisan, but such was its power that it controlled the Democratic party in this State during at least one session of the General Assembly. Because the Farmers' Alliance was non-partisan a new political party was organized in this state, known as the "Peoples' Party," and the Republicans fused with it. Although Dr. Thompson had always been a Democrat, it was the

logical thing for him to affiliate with this new party. His ability, integrity and real worth were recognized, and in 1896 he was nominated by this party for Secretary of State and elected. He served the people of the State in this capacity for four years. Upon the completion of this service in 1901 he returned to his farms. He voluntarily retired from politics at this time. The political campaigns in 1898 and 1900 were very bitter. The Democrats were endeavoring to re-establish their supremacy, and endeavored to bring back into their party all Democrats who had gone with the "Peoples' Party" and made its success possible. Having secured a sufficient number to again give them a working majority and the decadence of the "Peoples' Party," the campaigners for the Democratic party heaped vituperation, contumely and innuendo on all Democrats that had not returned to their party. I never heard Dr. Thompson speak of this, but those of us who knew him for the real man that he was, feel that he could never get the consent of his mind to affiliate with a party that had said so many evil and untrue things about him, not personally of course, but about the group in which he found himself, and hence he was literally driven into the Republican party, with which he affiliated ever after.

I said he voluntarily retired from politics, and that is true, because he was frequently besought by his party to become a candidate for any office that he would choose, and they insisted at various times that he should become a candidate for Congress, and only a few years ago he was importuned to become a candidate for Governor, but to all of these he turned a deaf ear. He had retired from politics.

In his own home county he was sent to the lower House of the General Assembly in 1883, and to the Senate in 1885, where he served his people and his State wisely and well, making for himself an enviable reputation. In 1889 he was elected a member of the Onslow County Board of Commissioners, and served by re-election twice, for five years, when he resigned. He served several terms as Health Officer of his county. During the war he served on his County Draft Board, and was its medical examiner. When the North Carolina Medical Service Corps was formed, Dr. Thompson was named by the Surgeon General as a member of the State Committee.

In 1904 he moved to Jacksonville and again took up the practice of medicine. He immediately became a Fellow of the Medical Society of the State of North Carolina, and continued in good standing until the day of his death. It is as a physician and as a member of this society that we knew him best and loved him most.

Dr. Thompson was elected by this Society a member of the State Board of Health at the 1913 meeting, was re-elected in 1919 and again in 1925, and his third term of six years, making a total of 18 years, would have expired at this meeting of our Society, had he been spared to us.

At the 1918 meeting of this Society at Pinehurst he was elected president, and presided over the 1919 meeting, which was also held at Pinehurst.

Dr. Thompson was a many sided man, and every facet was a success. After becoming discouraged in the practice of medicine, his chosen profession, he was a successful teacher, then a successful farmer, then a successful politician, always a successful statesman. Many wondered that he had not taken up law, for the reason that this profession would have given opportunity for the use of his finely developed powers of oratory, debate and repartee; but after all these successes he returned to his first love, medicine, and ever after until the hour of his passing, he devoted himself and his talents, his mind, his body, his very soul, singly and wholly to this one thing.

Thinking of his many-sidedness, it is rather remarkable that as a young man he felt his inability to open his mouth when he was called upon to speak in public and in the literary society at Randolph-Macon, he refused to even attempt to speak, and when his turn came he paid the fine prescribed in lieu thereof; and yet as the days went by he became the ablest debater of his time, and an orator of recognized ability. Certainly North Carolina has not seen his like in this respect since the days of Governor Zeb Vance. Our Society has had the benefit of this and enjoyed it to the fullest.

One of our presidents, as is customary, was very anxious to render all the service possible to the profession and this Society during his term of office. As the year drew near to a close he came down and spent the week-end with me and talked over Medical Society affairs, as he had often done before. He recounted to me various recommendations he desired to make to the Society, and hoped that the Society would approve and use them, and then he said: "I do not believe that anything can receive a majority vote in our Society if Dr. Cy Thompson opposes it." I replied: "If you feel that way about it you had better let Dr. Thompson read your recommendations before the meeting, and, if possible, secure his approval."

During Governor Bicket's administration, the Governor became very much interested in requiring a label on the bottle, giving the ingredients in every bottle of patent or proprietary medicine sold in our State. He was advised that this was one of the biggest jobs he had ever undertaken, and that he might expect a real fight. He was undaunted. The hearing came on before the committee, and was held one evening in the Senate Chamber. It was whispered around that a prominent attorney from New York would appear for the proprietary medicine manufacturers, and Dr. Cyrus Thompson would represent the Governor, the State Board of Health, the medical profession, and the people of North Carolina. The Senate, including galleries, was filled, standing room was at a premium. The New York lawyer made his speech, forceful, logical and telling. Dr. Thompson followed in one of the ablest arguments I have ever listened to. A lawyer, who stands high in the councils of the State,

stood in one position, not even shifting his position in the slightest, while Dr. Thompson spoke. When it was over, the New York attorney came forward, introduced himself to Dr. Thompson, shook hands with him and said, "I have never taken such a drubbing before in my life. I know when I am beaten. Let's go eat."

Perhaps his President's address before this Society was his ablest effort. His subject was, "The Art of Living." He knew the art of living, in his mind and soul and body, in every fibre and every cell of his being. He practiced the art of living every day of his life. It fitted the times, as did everything he said and did. It was April, 1918, when Dr. Thompson took upon himself the honors and responsibilities of President of this Society. It was then the World War was reaching its zenith, and those of our people at the front, and no less our people at home, were all enlisted and mobilized for the duration of the war, and Woodrow Wilson was our matchless leader and our commander-in-chief. Little wonder then that Dr. Thompson, in April, 1919, "when," using his own words, "the storm of strife of war was lulled as if tired out by its own fury; the slaughter stayed; the weary and wounded world taking some sort of a resting spell; our dead asleep in friendly soil; and the living coming back home again," should turn his thoughts to President Wilson, then in France on a mission intended to end war, and pay him a tribute the like of which I have not read or heard. When the transactions of 1919 were printed, the secretary had six copies of this address bound in hand buff leather and sent two copies to President Wilson, three copies to President Thompson, and kept one for himself. President Wilson wrote Dr. Thompson and the secretary an appreciative letter of thanks. I read Dr. Thompson's President's Address at least once every year. I commend it to you. You will be the better doctor and the better man if you read it at least once every year.

Our hearts are full. We cannot give utterance to the thoughts we would like to express. Cyrus Thompson! We miss thee! Thy going has left a void in our Society, in our State, in our minds and in our hearts, and likewise those of thine own household and all who knew thee! Thou hast entered upon a well deserved rest. God will rest thee, for He hath said, "For inasmuch as ye have done it unto one of the least of these, ye have done it unto Me." We follow thee soon! Until then, Cyrus Thompson, good-bye!

Mr. President and Gentlemen of The North Carolina Medical Society:

Promptly after the irreclaimable loss of the two choice members of our Board and of the Society by death, first that of Dr. Charles O'H. Laughinghouse, then all too soon Dr. Cy Thompson was a victim of the fell destroyer, I wrote the measure of my heart about them which was duly published in our Journal, Southern Medicine and Surgery. Therefore at this time I shall most briefly draw on my heart another tribute of love for them.

Gentlemen, the well-known adage, "Say nothing but good of the dead" would never have been formulated had all men measured up to their high standard for the elements so prominently entering into their composition would rise up and say, truly here were men. I never met more lovable natures. I had the warmest regard and admiration for Dr. Cy Thompson. My attachment to and affection for Dr. Chas. O'H. Laughinghouse was up to if not beyond that I ever felt for any other one with whose companionship I have ever been favored. My feeling for him made me accept most unqualifiedly the statement of the sacred writer in setting forth the attachment of Jonathan and David, when he said, "their love for each other exceeded that of women"; he caused me to understand this fully.

Their loss is not confined to this Board or this Society, our State and the world which they served and gave uplift to, viewed with sorrow the vacant chairs they so worthily filled. Oh friends, among the favors this world has granted me I esteem it the highest privilege of my life to have had their association and friendship.

"Death loves a shining mark" is an old and trite remark. Where do you find a more convincing proof of its truth than in the taking of these two ten-talent men? I might write volumes portraying them, but prefer in the simple unaffected language of the heart to say that they so wrought upon us as to draw out our unstinted love.

—Thos. E. Anderson.

DR. CYRUS THOMPSON

By

James M. Parrott, M.D.

Kinston, N. C.

During the years immediately preceding the Civil War, as it was before and has been since, there was the remarkable community in Onslow County. Its soil was fertile, so much so that the little Post Office from which the weekly mail was distributed was called Richlands by common consent.

The climate in this section, as it is in all Eastern North Carolina, is almost ideal. Its winters are tempered by the Gulf Stream which flows scarcely fifty miles away, the temperature of its summers are moderated and its humidity lowered by ocean breezes.

It was a beautiful section. Lazy, enticing waters, balm for tired nerves, flow slowly to the sea, bearing in their bosoms all kind of fish natural to the Eastern country. Its lordly pines, giant oaks and rugged cypress and great cedars, interspersed with dogwood and multitude of other flowering shrubs graced with yellow jasmines were a feast to the eye of man. The liquid notes of the wood thrush, the clarion call of the cardinal, the whistle of the quail set in tune with the call of the crow, the mourning of the dove, the call of the lark, accompanied by the music of the mocking bird, made the woods ring with melodies of nature's symphony. Palms, rose-bowered homes and

the old-time flowers was a setting beautiful to behold. "There were high and holy standards of life there and high ideals to live up to."

The neighborhood was peopled with a great people. To the extreme East lived the Averetts, an outstanding Carolina family. In this household was born the distinguished Episcopal clergyman, James Battle Averett. In those days there came from Ireland a recent graduate of classical and the medical department of the University of Dublin a young man named Duffy, Dr. Charles Duffy, Sr. He was the father of Dr. Charles Duffy, Jr. and Dr. Frank Duffy, both of whom received—and they deserved them—highest honors of this Society. Into this household was born a great lawyer, the Hon. Rudolph Duffy. To the extreme west there lived the Browns. This was a very strong family intellectually, morally and physically. Almost in the center there lived a man named Frank Thompson, Sr. He was a man of rare learning and culture. He married Miss Leah Brown. She was of the Brown family to which I have referred. She was a typical Southern lady of unusual charm and brilliancy. To this union there was born a number of children, all of whom were outstanding; notedly, Frank Thompson, Jr., who obtained a great reputation throughout the State as a lawyer of unusual forensic power. In the early days of 1855 there was born the most distinguished son which Onslow has ever produced; they called him Cyrus—Cyrus Thompson—none other than our dear departed friend. His father being a man of unusual learning and great mentality and his mother of like mental attainments had their children educated especially in classics and music. The best of private schools were provided in this neighborhood. During strategic times private tutors were employed in the Thompson home. When ten or twelve years of age Cyrus was sent to Raleigh and placed in one of the best preparatory schools in the State to study and complete his preliminary education. From Raleigh, Cyrus went to Randolph-Macon College in Virginia, at that time one of the South's outstanding institutions of learning. There he came under the immediate instruction of such distinguished professors as Estelle, Morris and Price. He had the advantage of associating with such students as Walter Hines Page, Gilbert Tillet, now the distinguished Dr. Tillet of Tennessee, and young Blackwell, now President of Randolph-Macon College. He won the most coveted college honor, the Greek prize. Young Cyrus graduated when he was sixteen and went at once to the University of Virginia, continuing his education in classics. He later entered the medical department of the University of Louisiana, now the famous Tulane University, where he graduated in medicine.

Dr. Thompson, with his natural endowments and his unusually thorough preparation and coming from such a remarkable community and household with all its cultural surroundings, could have done well in a large city. Like Moses, he preferred his own people who were then poor, rather than to dwell in the palaces of the rich. Quite fortunate for Onslow and North Carolina was this decision. Dr. Thompson listened to the call of duty and for him the path to duty proved to be the way to glory—a life of service.

In 1882 he married the talented Florence Garland Kent, of Richmond, Va. Dido, Queen of Carthage, was Virgil's finest and most lovable creation. She did not love Aeneeus more devotedly than the gifted Miss Kent the brilliant Knight of Onslow. He gave to her the early violets of the Spring and she in turn gave to him the last beautiful carnation in the Fall. Their home relations were ideal. In love and tenderness he called her "Little Mother" to the end. She gloried in his triumphs and comforted him in defeat. She was such a one as Irving must have had in mind when he gave utterance to the sublime thought that in there is a spark of heavenly fire in every true woman's heart which lies dormant in the broad daylight of prosperity, but which burns and blazes in the dark hours of adversity.

The first ten years of Dr. Thompson's professional life were constructive years. They were his character and habit-building years. He learned service and how to serve. He assimilated his classics. Certainly as one studies and lives the first ten years of his adult life, so he will be always. Dr. Thompson then taught and farmed and doctored. All the while he walked with Plato, talked with Socrates, sang with Homer, traveled with Virgil, spoke with Cicero, winged by the pastoral odes of Horace, his soul soared like a skylark. He communed with Milton. He wept with Tom Moore. Sat by the Cotter's fireside with Burns, mused with Tennyson and Longfellow and made Scott and Cooper and Thackery and the philosophy of Marcus Aurelius his very own.

In 1888, economic conditions which had been gradually slipping backward for two or three years, began to grow worse rapidly. His responsive and sympathetic nature was stirred by the inequality of affairs and the sufferings of his people. Full of the milk of justice and of human kindness and with a burning, consuming desire to right wrongs, Dr. Thompson's very soul revolted. He was outraged by the coming economic slavery. He drew his sword. He threw himself into the fight to correct the wrongs with a self abnegation which challenges, with the abandon of a crusader, with the chivalry and devotion of a medieval knight and the boldness of a Marian and the heroism of a Spartan. He travelled here and there throughout the State, calling the clans to action. With stinging, sharp cutting satire, rare wit, overwhelming ridicule and a stirring eloquence, he rallied the people of the commonwealth as they had not been in many years before or since. He gave all for what he thought was right. He battled at Armageddon. "How much better can a man die than facing fearful odds for the altars of his home and the temples of his gods."

Dr. Thompson was fundamentally a Hamiltonian in his political philosophy. He was an intellectual aristocrat, though he would have denied this. He believed the brains of the few should control the foolish thinking of the many with the proviso that the rule should be a democratic rule. He declined to substitute the tyranny of the mediocre for the supremacy of the individual. His bold nature and fighting propensity made him answer the challenge of political foes by joining the opposition party. I did not agree with his partisan party views, but I and others who knew him were sure he was honest.

He retired from politics without bitterness, retaining the respect of his adversaries in spite of the many tempestuous years of intensest party strife.

After serving four years as Secretary of State, Dr. Thompson retired from office in 1901, never again to be active politically, though he continued to take an intense interest in politics to the end of his life. His heart was the heart of a physician and he yearned to begin active practice again. His desire to render the best service possible impelled him to go to Philadelphia for post-graduate medical instruction before renewing his professional activities. He learned of the microscope, modern surgery, modern therapy, modern diagnostic instruments and about sanitation and disease prevention. He re-learned then what he had learned at Tulane fifteen or twenty years before, the medicine of the leaders. He returned to Onslow County and located in the village which is the county seat. He then began to learn and finally mastered the medicine of life. He was really a great family doctor. He sought first in the kingdom of medicine human sympathy and knowledge of the patient and then much knowledge of disease was added unto him. He was urged to locate in a larger city, but he stuck to his people. Old Onslow called him. He could serve there and then, too, he was living in hailing distance, so to speak, of the place of his birth!

> "How dear to my heart are the scenes of my childhood,
> When fond recollections presents them to view,
> The orchards, the meadow, the deep tangled wildwood,
> And every fond place which infancy knew."

Dr. Thompson's chiefest professional joy was found in constructive health conception and disease prevention. He was really a practical sanitarian in the scientific world. His supremest thought in medicine was that the little man and all men might live life more abundantly. He welcomed service on the State Board of Health more than any other of his numerous professional honors and opportunities and he wrought really a great piece of medical statesmanship while on the Board. No man can do better service in medicine than to prevent disease. The State Board of Health is the best means of doing this. Public Health is the collective contribution of the medical profession to civilization; it is the practical expressions of our aims and hopes; it is our sacrificial offering on the altar of society in the temple of faith. It lifts us to higher planes and safer grounds.

Dr. Thompson served as President of the Seaboard Medical Society, Tri-State Medical Society, State Medical Society, and these organizations prospered under his leadership.

At home he was surrounded by those he loved and those who loved him. He renewed there his friendship for the ancient and modern classics. He "found sermons in stones" and good in all nature. He based his philosophy on the proposition that happiness is like the Kingdom of Heaven in that it cometh from within. The fine art of right living with its philosophical background was his Holy Grail.

Dr. Thompson was deeply religious and of the old-fashioned Metho-

dist type. His greatest pleasure was found in his abiding faith in Christianity. He did not discuss it much. His was not Pharisaical religion. He profoundly believed that he who would have religion must live it rather than talk it. Well do I remember how he on one occasion thrilled a great audience and swept it to the very heights of ecstatic joy with one of his well-rounded eloquent statements. "I know not," said he, in effect, "where God was when the Germans invaded Belgium, but He was in Philadelphia in 1776, when this great country was conceived; He was with John Marshall when he penned his immortal governmental interpretation consolidating this country; He was with Andrew Jackson when he declared the 'Union must be preserved'; He was with Lincoln when he saved the Union and He is with Woodrow Wilson in this tragic hour as he consolidates the nation and leads our mighty hosts to save the world."

As soon as the World War began, being a strong republican, he wired Governor Bickett, "Politics is adjourned. Call me if you need me." Bickett called him. He became a flaming patriotic evangel as he criss-crossed over the land preaching service to the State to vast crowds. Though growing old he gave himself unstintedly to his country, and his children went to war. Both his able-bodied sons and his daughters walked to the altar of their country with unfaltering tread and said, "Here, Uncle Sam; here am I, take me."

Dr. Thompson never was a rich man as we in worldly terms count riches, but he always had a sufficiency of material things. His real riches were of finer stuff, which were and are more enduring than brass. His wealth was of things spiritual. He was a man of lofty ideals and noble, enduring purposes. He kept faith with his visions splendid. He heard and followed the dreams of his ideals. His life was the life sacrificial:

> "Speak! Oh History unfold thy long annals and tell me,
> Who are the world's heroes?
> The Spartans who fell at Thermopolae's tryst or Xerxes?
> Socrates or his traducers?
> Pilate or Christ?"

Dr. Thompson sent the tap root of the tree of his life into the clay of Character and the anchor roots into the sub-soil of Intelligence and the feed roots into the top-soil of Love and the fruit of his tree was Service. He threw himself on the wheel of service for fifty years and more. It broke him. He fell in pieces, but he arose triumphant. He walked across the stage of life arrayed in the regal splendor of a true man and slipped behind the curtains with a smile. We buried him in the family cemetery with his own people. We are not disconsolate, because we have his faith that there will come a morning, "The morning of the King, when the dead in Christ shall rise." "His great spirit was welcomed to Heaven by his parents and Paul and Silas," and Dr. Luke, and Nicholson and Charlie Laughinghouse, all of whom he loved so well. Correctly did the State's leading morning paper say in speaking of him, "The mould in which he was cast is broken and we shall not see his like again."

DR. J. C. THRAILKILL

Dr. J. C. Thrailkill, age 37 years, died at the home of a brother at Seaforth, November 22, 1930.

He is survived by three brothers and two sisters. He was buried with Masonic honors.

DR. WALTER EDWIN WALKER

Dr. Walter Edwin Walker, outstanding physician of Burlington for seventeen years, died from paralysis October 3, 1930.

Dr. Walker was born at Locust Hill, Caswell County, August 28, 1880. He completed the medical course in the Medical College of Virginia in 1903, and then practiced medicine in Graham and Saxaphaw.

In 1910 he married Miss Carrie Stanford, who with three children survive.

He was a member of the First Presbyterian Church, a Mason, a Shriner, a member of the Rotary Club and the Junior Order, and was surgeon for the Southern Railway.

WALTER EDWIN WALKER

Burlington

Walter Edwin Walker, competent physician, wise counselor, and good friend, ceased to breathe on the morning of October 3, 1930. His whole life had been one of tireless energy and of unswerving devotion to the causes and friends that he held dear.

He was born in Caswell County, August 29, 1880; graduated from the Medical College of Virginia in 1903, and after serving an internship at the Memorial Hospital of Richmond, returned to his native section to practice his profession. Here he soon came to occupy a prominent place in the life of the community, both as a physician and as a citizen of vision, who had the larger interests of this section at heart.

In the Alamance-Caswell Medical Society he took an active part, and was one of its most faithful members. He was regular in attendance, active in the discussion of medical subjects, and happy in his contacts with fellow members. The members of this Society will miss him sorely, and are deeply sensible of the fact that his family will feel his absence even more keenly.

As a token of our esteem we wish therefore to devote a page in our minutes sacred to the memory of Walter Edwin Walker, M.D., even as we shall keep fresh his love in the green fields of our memory. We wish further to extend to his family our deep sympathy in their loss.

Committee:
S. Floyd Scott.
S. C. Spoon, Jr.
Geo. L. Carrington, *Chairman.*

November 11, 1930.

DR. WILLIAM H. WARD

Dr. William H. Ward died at his home in Plymouth, November 9, 1930, of angina pectoris.

He was an Honorary Fellow of the Medical Society of the State of North Carolina.

DR. W. H. WARD

By

Dr. J. L. Spruill

In the death of Dr. W. H. Ward of Plymouth, N. C., the medical profession of the State loses one of its most valued members and the community in which he lived suffers the loss of one of its finest citizens and a beloved friend of 50 years.

Just 31 years ago I first met Dr. Ward, when, as a young man, I began to practice in the same territory with him. As the years passed we became more and more intimate, and in his passing I lose one of my best friends. He was one of the best posted physicians that I ever knew, and was one of the few men that I have known in a lifetime that wasted no time. He had one of the finest libraries in the State, and always took a number of the leading medical journals. Being a rather highly educated man he was, in connection with this, a hard student, keeping up with all the newer and most valuable information that came out.

Dr. Ward lost his wife about 30 years ago; he had no children and very few relatives, being survived by one brother. Personally, he was naturally one of the most refined gentlemen and staunchest friends that it has been my privilege to know. His character was so pure and clean that it was a joy to spend time with him. He was a christian gentleman in the highest sense of the word.

DR. WILLIAM E. WARREN

Dr. W. E. Warren of Williamston, N. C., died at his home at that place April 5, 1931.

Dr. Warren was quite prominent in medical circles, having been active in medical society work and in contributing to medical journals.

DR. WILLIAM E. WARREN

Editorial by

Dr. J. M. Northington

(*In Southern Medicine and Surgery*)

"Cousin William is dead," I said to one of his large circle of "cousins" at the meeting of the Medical Society of the State of North Carolina at Durham: "It can't be true," said he. "Cousin

William is dead," I said to another of this favored group at Greenville for the session of the South Carolina Medical Association three weeks later: "I don't believe it," said he.

But, sadly, it is true. He whose geniality, warm-heartedness and lovableness had so impressed so many of us at sessions of the Tri-State, the Seaboard and the State societies as to become to us "Cousin William," will foregather with us no more.

In his altogether charming Memoirs, Dr. Victor Vaughan beautifully set forth his own way of choosing his cousins. Dr. Vaughan would have taken our Cousin William to his bosom.

Dr. Warren was a family doctor, and he took no stock in the bemoaning prophecies of the passing of the family doctor. He had first-hand knowledge of what the real family doctor can be to, and do for, his people; and this made him serenely sure that the family doctor would last as long as time lasts, to the confusion and disappointment of every generation of prophets of his doom.

In Williamston and Martin County he went about daily spreading health and happiness. They mourn him as their doctor, as a man, and as a citizen. No one can take his place in our medical meetings. While there remain two of those who knew them, the kindred spirits, "Cousin William" and "Dr. Cy," will be invoked when we come together for the renewing of our strength.

A TRIBUTE TO DOCTOR WM. E. WARREN

By

Dr. E. G. Moore

Dr. William Warren was born March 31, 1869, and died at his home in Williamston, N. C., April 5, 1931, aged 62 years.

For thirty years Dr. Warren had served as ministering physician to his community, and was held in high esteem by the profession and the people. At the time of his death he was County Physician of Martin County, and had served as president of the Seaboard Medical Society and vice-president of The North Carolina Medical Society with becoming distinction and honor.

Dr. Warren was of striking personality, attractive in his individuality and genial and popular in his relations and intercourse with his friends. He had the capacity for service and was seldom indisposed by reason of illness, and yet succumbed to an attack of pneumonia of only four days' duration.

Dr. Warren succeeded in business and professional relations, but accumulated no distinctive wealth, which the world applauds, and yet he accumulated riches of greater value: the gratitude of his clientele, the esteem of his associates, and the affection and loyalty of his friends.

The wealth of fortune and position do not always abide, nor dispense that happiness which gladdens life and gives peace to sorrowing souls. It is the little kindnesses, the gentle smiles, the tender encouraging words, the sweetened disposition, the golden

sympathy which crown the joys of life and make it the rose garden of perennial bloom and beauty and sweetened fragrance, and fills the sensitive mind with eternal comfort and the patient soul with everlasting peace. His pilgrimage was one of cheer and brightness; he cast no shadows, he indulged no fear and suffered no remorse; but with faith and confidence and hope he met his Lord face to face, taking with him as his passport the jewels he had won in the service he had rendered to others.

Thus he passed to his reward, leaving a vacancy in his profession which will be most difficult to replace, and a host of friends who will long mourn the loss of a friend who was so loyal and so true.

"Sleep on, thy pulseless heart,
Where jasmine stars drop golden rain;
From every troubled heart, apart;
Forgotten every earthly pain.

"Sleep on, thy long repose is sweet;
Tender and cool thy grassy sod.
O traveller, stay thy hurrying feet;
Step softly here: he rests in God."

WILLIAM E. WARREN

By

Dr. L. B. Evans

William E. Warren, son of Allen and Mary Lucy (Edwards) Warren, was born near Greenville, Pitt County, N. C., on March 31, 1869. Dr. Warren received his early education at Greenville, and following his graduation there he took up the study of medicine under the direction of the late Dr. Charles J. O'Hagen, grandfather of the late Charles O'H. Laughinghouse. He afterwards attended the College of Physicians and Surgeons of New York City, from which he graduated in 1890, and began the practice of his profession at Greenville, where he remained for fourteen years. In 1904, Dr. Warren took up his residence in Williamston, where he continued the practice of his profession until his death, April 5, 1931. He was universally loved and respected by the entire community, and by his patients he was held in as high regards as any physician who ever practiced in the state. He was the acme of courtesy, and his consideration and concern for those who were suffering greatly endeared him to all classes of society.

Dr. Warren was much interested in the medical associations of the entire nation. He was a member of the North Carolina Medical Society, of which he had been vice-president and the head of many important committees. He also held membership in the Tri-County Medical Society, and served for many years as its secretary. He was a member and vice-president of the Tri-State Medical Society, and perhaps the last meeting he attended was the meeting of this

Society in Richmond during the month of February, 1931. He was also a member of the Seaboard Medical Society, and had served as president of this Society. He was also a member of the American Medical Association, and attended many of its meetings.

During the World War, Dr. Warren was medical examiner for the Selective Board of Martin County, and did most effective work for his country during this time. He was a member of the Masonic Lodge at Robersonville, Martin County; the Independent Order of Odd Fellows, the Improved Order of Red Men, and the Modern Woodmen of America.

Dr. Warren was twice married, first to Miss Eva Flemming, daughter of Rufus and Sophia Langley Flemming, who were residents of Pitt County. Mrs. Warren died on February 26, 1922. On April 30, 1923, Dr. Warren was again married to his first wife's sister, Miss Deborah Flemming, and the ceremony took place in Norfolk, Virginia. Dr. and Mrs. Warren were the parents of one daughter, Mary Edwards, a young child of five years.

Dr. Warren's death occurred at his residence in Williamston on April 5, 1931, after a four days' illness with pneumonia. He was attended by physicians from many sections of the east, and his death was greatly lamented by friends, not only in North Carolina but in many sections of the country. His funeral was one of the most largely attended ever to be held in Williamston, for he was universally loved and respected.

DR. VICTOR EMANUEL WEYHER

Dr. Victor Emanuel Weyher, 84, died suddenly at his Kinston home July 2. He was still in practice and attended his last patient only a few hours before his death. Dr. Weyher spent 12 years in the Universities of his native Austria, was graduated from the University of Vienna at the age of 23. Soon afterward he came to America, and after short stays in New York and Baltimore, made his permanent home in Kinston, where he established a successful practice lasting 59 years, and reared a family, a number of whose members occupy posts of prominence. A brother was Major General in the Army of Emperor Franz Josef.

DR. ELIJAH BELL WHITEHURST

Dr. E. B. Whitehurst of Beaufort, N. C., died at his home at that place on ——————, 1931.

Dr. Whitehurst was born at Beaufort in 1893, graduated in medicine in 1917 and was licensed by the State Board the same year.

DR. BODDIE BAXTON WILLIAMS

Dr. B. B. Williams, age 72 years, died at his home in Greensboro, N. C., October 11, 1930.

Dr. Williams was a native of Warren County, having been born there on March 18, 1858. He was well known in and around Greensboro, having served for 5 years as city health officer.

Surviving Dr. Williams are his widow, Mrs. Martha A. Williams, two sons and two daughters.

DR. FRANCIS M. WILLIAMS

Dr. Francis M. Williams, a practicing physician of Acme, N. C., died October 15, 1930.

His mother, a brother and several sisters survive.

DR. LEWIS HICKS WILLIAMS

Lieutenant Commander L. H. Williams, Naval Surgeon, 41 years of age, died at a Goldsboro Hospital Wednesday, February 19, 1931, having been brought to the hospital at 2:00 o'clock that morning.

Dr. Williams was a graduate from the University of North Carolina and of Johns Hopkins School of Medicine. He entered the United States Navy as Lieutenant in 1916, went over on the first fleet of destroyers during the World War, and served overseas 18 months. He was later stationed at Brooklyn Navy Yard marine barracks, and then was for three years in Haiti. He was a member of the American College of Surgeons, and also a member of the Presbyterian Church at Faison, N. C. Surviving are his wife and four children.

DR. ANNIE ALEXANDER

By

THE CHARLOTTE OBSERVER

A factor of popular and beloved identity with the social and professional life of Charlotte is removed in the death of Dr. Annie Alexander, after an illness so brief as have been known by only a small portion of the population, a circumstance which accentuated the grief of the people over her passing. She was not only Charlotte's first woman practitioner, but was the first woman in this section of the south to regularly embark in the medical profession. With her it was not an experiment, for she launched forth with prestige of having stood at the head of the class from which she graduated, and likewise making the highest mark in the examination for license. She was recognized as a doctor of completed education at the outset of her professional career, establishing high rank, which was maintained to the end.

The demand for the services of "Dr. Annie" was of a nature to keep her constantly busy, and yet she found time to engage in the many social, charitable and patriotic engagements of the day. Her interests appeared of boundless nature, and perhaps the best-remembered of all those was the influence she exerted toward establishment here of the Crittenton Home, her identity with Associated

Charity work having been of like resourcefulness. Born of Revolutionary stock, it was but natural that she should have figured conspicuously in the councils of the Daughters of the American Revolution, while her identity with the Daughters of the Confederacy was perhaps a little more closely established. She came nearer filling the position of "the community friend" than any other personality in Charlotte. She honored her profession and in turn was honored by it. It was truly a lovable character that Charlotte is mourning today.

DR. ANNIE LOWRIE ALEXANDER

By

Mrs. W. R. Stowe, Belmont, N. C.

The death of Dr. Annie L. Alexander, at her home in Charlotte, on October 15, 1929, following a brief illness with pneumonia, removed from the community and state one of the most highly honored and respected physicians, as well as one of its most important influences. The passing of this unusual woman removed from the sick and suffering a sympathetic friend and capable physician. Love and kindliness radiated from her presence in the sick-room, inspiring confidence.

Pioneer Woman Physician. Dr. Annie Lowrie Alexander, distinguished as being the pioneer woman physician of the whole south, practicing medicine in Charlotte, Mecklenburg County, from 1887-1929, was the first woman physician to practice her profession south of the Potomac River. She is also conspicuous for having overcome all existing prejudice and for winning a remarkable success and many honors. Her invasion of the field of medicine, so long held by men, and with the laity slow to accept the woman doctor, required very considerable courage.

After her graduation from the Woman's Medical College of Pennsylvania in 1884, at the age of twenty, she served as interne in the Woman's Hospital of Philadelphia. A year later she accepted a position as assistant teacher of anatomy in the Woman's Medical College of Baltimore. Later she did post-graduate work in the New York Polyclinic.

When she went before the North Carolina State Board of Medical Examiners, 1885, to take the examination for her license to practice, she was the only woman in a group of more than one hundred, and received the highest grade on her work. She was admitted to the State Medical Association at that time.

In 1887, Doctor Alexander located in Charlotte, North Carolina, and in a short time, despite the prejudice then current against women physicians, she was regarded with great respect by other members of her profession.

In 1890, her parents, Dr. and Mrs. John Brevard Alexander, and family, moved from their farm near Davidson College to Charlotte,

DR. ANNIE LOWRIE ALEXANDER

and there established with Dr. Annie L. Alexander a home on North Tryon Street.

Honored by Profession. During her career as a physician, Dr. Alexander received many professional honors. She was elected president of the Mecklenburg County Medical Society, and vice-president of the Women Physicians of the Southern Medical Association. She was also honorary fellow of the North Carolina Medical Association, and member of the American and Southern Medical Associations. She served on the staffs of St. Peter's and the Presbyterian Hospitals, and for twenty-three years was physician to the Presbyterian College for Women, now Queens-Chicora College. During the World War Dr. Alexander was appointed acting assistant surgeon at Camp Greene, in recognition of her skill as surgeon as well as general practitioner. Her principal work in that capacity was the medical inspection of the thousands of public school children.

Although her activities as a physician occupied most of her time, she was never too busy to devote herself to welfare and charitable work. She accentuated welfare work among women and girls especially. For many years she served on the directing boards of the Young Women's Christian Association, the Associated Charities, and the Co-operative Nurses' Association. She was also a board member and physician for the Florence Crittenton Home from the time of its beginning in Charlotte.

Throughout the mature years of her life, Dr. Alexander was prominent in the social and civic activities of Charlotte. She held offices in the Mecklenburg Chapter D. A. R., United Daughters of the Confederacy, and the Charlotte Woman's Club. She was descended from a distinguished line of ancestors, who were closely allied with the state's history, and with the development of the Presbyterian Church in North Carolina.

Became Widely Known. During her long and active career, Dr. Alexander came in contact with thousands of people. She was widely known and loved for her personal charm and graciousness, and for her deep interest in and sympathy for the needs and afflictions of others.

A MEMORIAL TO DR. JOHN BAIRD

By

Dr. W. F. Robinson

The people of Mars Hill College and community and the medical profession suffered a distinct loss in the going of Dr. John Baird—"Dr. John," as he was affectionately known. Dr. Baird was reared in the community here and had been closely connected with the people of both school and community during his entire life. Two or three words should be said in appraisal of this distinguished physician.

Devotion to a task. We have scarcely known a man whose devotion to a task came nearer being worship than his. For a score of

years he gave himself unreservedly to the practice of medicine. It mattered little to him whether the patient had money or not, his first interest was in the patient himself. If anything, he was too much this way, for some took advantage of his goodness and did not pay when they were able. Although broken in body himself, he never let up in his practice or study until he became recognized by the members of the profession as one of the leading physicians who practiced in this part of the state. Especially was he recognized as a very careful and accurate diagnostician. Intellectual acumen plus a passion for his work, plus persistent application under difficulties, brought him to this enviable rank.

A profound sense of real worth. A quack in religion, business, politics, or medicine received alike his moral repudiation. He hated hypocricy or make-believe as profoundly as he loved genuineness and real worth. He appreciated a real friend as he hated a false one. He had an almost worshipful regard for the memory of his father, who was also a physician. He loved his home; and one of the finest tributes that could be paid to a man can be paid to him: Children loved him.

Along with these qualities went the inevitable accompaniment of real worth—a profound sense of humor. His wit literally sparkled as the glitter of light on rippling water. Few men I have known had the ability of telling a story as did Dr. Baird. In this day of combines in professions and business we are likely to lose a great deal of the personal touch. Dr. Baird maintained that touch with his patients scarce known in his profession. They all believed in him profoundly and respected him highly. And not once did he ever betray that trust. To the unsullied memory of a true friend and devoted physician, we place a wreath of praise.

Born May, 1885; died November 7, 1929.

The Chairman: Gentlemen, that completes the memorial service, and we are going to have a couple of scientific surgical talking movie films, with the compliments of the Petrolagar Laboratories.

(Showing of films then proceeded.)

Whereupon, at the conclusion of the showing of the films, the meeting thereupon adjourned.

THIRD GENERAL SESSION

LECTURE ROOM "C"

APRIL 22, 1931. 9 A. M.

The Second Vice-President, Dr. J. W. Davis, in the chair.

The Second Vice-President called the session to order at 9:10 a. m.

The President: The first number on our Program is a very interesting lantern-slide demonstration of "The Indications for Surgical Treatment for Pulmonary Tuberculosis," by Dr. W. P. Herbert, Asheville, from the Section on Surgery.

SURGICAL MEASURES FOR PULMONARY TUBERCULOSIS

W. P. Herbert, M.D., Asheville

Surgery of pulmonary tuberculosis presents some unique and rather interesting features. It is with these usual characteristics and the problems which they present that this paper has to deal, rather than with a detailed description of the present-day operations employed as aids to the cure of pulmonary tuberculosis.

In order to have a clear conception of some of these difficulties, it is necessary that we review hastily the operations, together with the objects at which they aim. The fundamental factor in the cure of tuberculosis is rest of the diseased tissues. Rest through collapse, or rest through fixation, is the object at which the surgeon aims. The surgical procedures employed in an attempt to bring about a condition of rest are: artificial pneumothorax, avulsion of the phrenic nerve, multiple intercostal neurectomy, intra-pleural pneumolysis, and extra-pleural thorocoplasty.

The first of these, artificial pneumothorax, has been relegated to the province of the Internest, although it is really a surgical procedure. It is the simplest method of obtaining collapse of the diseased lung. The second procedure, phrenecectomy or phrenic nerve avulsion, consists in a sectioning or pulling out of the phrenic nerve causing a paralysis and a consequent rising of the diaphragm on the affected side. This diminishes the vital capacity of the chest from one-fourth to one-third. This operation has no effect on any of the muscles of respiration, except the diaphragm. The next operation, that of multiple intercostal neurectomy, is one in which there is a sectioning, with a resulting paralysis, of the intercostal nerves. This results in a paralysis of the accessory respiratory muscles. This operation is performed through an incision extending from the second to the eleventh rib, posterially over the angle of the ribs. The nerves are exposed and sectioned in the intercostal spaces just anterior to the angle of the ribs. A combination of phrenecectomy and multiple intercostal neurectomy results in a fixation of the diaphragm and chest wall on the diseased side.

The next operation, that of intra-pleural pneumolysis, is employed in those cases where adhesive bands between the parietal and viceral pleura prevent the introduction of gas, with the consequent collapse of the lung—that is, the establishment of artificial pneumothorax. It consists in cutting with a cautery these adhesions. This enables pneumothorax to be accomplished. The operation is usually done through two openings made into the pleural cavity, one to carry the thoracoscope, and the other to carry the cautery. I believe a thoracoscope has recently been developed by Dr. Matson of Portland, Ore., which requires but a single opening. This operation has a limited field of usefulness, but because in certain cases it makes pneumothorax possible, it should receive consideration.

The last of the operations mentioned, that of extra-pleural thorocoplasty, is the one with which today we are most concerned. I

have been interested in looking over some of the articles written by me several years ago, and also in reviewing in my mind some cases of two or three years standing, to note the changes which have taken place in even so short a time. The operation, while one of considerable magnitude, both to the surgeon and the patient, is not one that is technically or mechanically so very difficult. It has as its object collapse of the lung, to be accomplished by the removal of a portion of all of the ribs on the affected side, with the exception of the twelfth. This is done in two or three operations, performed at intervals of from ten days to two weeks. The ribs are removed subperiostially from the articulation outward for a distance of from one to six inches, according to the ribs attacked. This results in a collapse of the underlying lung, also in a reversal of its normal physiological movement, as after the removal of the ribs; on inspiration it will follow the expansion of the opposite lung being pulled to the opposite side, while in expiration it takes the opposite movement. This is called paradoxical respiration. The result is that that portion of the lung lying under the resected ribs is of little, if any, use. This operation, like the others mentioned, is performed with the idea of obtaining rest or partial rest for the diseased lung. It pre-supposes a unilateral tuberculosis, the contralateral lung being in a healthy condition. The other operations mentioned may be classified as minor, in that it is possible to perform them in the presence of some existing disease in the socalled good lung. Thorocoplasty, however, is of such major proportions that it should never be undertaken where the condition of the opposite lung is even questionable. Not only is this true, but there should be evidence, both X-ray and clinical, that the patient is or has been capable of fibrotic formation. By this I mean that any patient whose lungs do not show areas of fibrosis, that is areas of healing, probably has not sufficient resistence to withstand a complete thorocoplasty. We are of course confronted with many varieties of cases demanding operation, and it is the intelligent consideration of these cases that has more to do with the success or failure of the operation than the technical perfection of the operation. For that reason I know of no problem in medicine or surgery which requires the close co-operation and intelligent joint consideration of the surgeon and Internest as does the determination of what patients this operation is suited to. It must be remembered that no portion of the diseased lung is being removed. That any toxicity which exists will have added to it, a serious burden in the form of a major operation. That the operation in itself does not cure, and only aids in a cure after its immediate effect has been passed, and that its success is entirely dependent on a previously demonstrated resistance and healing power of the individual operated upon. This must be forecast correctly by the internest and surgeon prior to the operation. Also cases must be considered as to whether or not two, three or even four stage operations should be performed. Cases with markedly thickened pleura, cases formerly subjected to artificial pneumothorax, cases with partial collapse from old empyemas, in short,

cases in which the mediastinum is relatively fixed, owing to some previous condition, these cases are the ones which bear the operation most successfully. As has been pointed out, the removal of considerable portions of a number of ribs causes the condition of paradoxical respiration. This paradoxical respiration in turn causes from side to side motion of the mediastinum. This is known as mediastinal flutter. In that the heart is involved in this motion, this flutter, if excessive, may result in serious consequences. If there is fixation of the mediastinum, and the condition of the patient is otherwise favorable, such a patient may possibly be subjected to a two-stage operation, and also may have a greater portion of the resected ribs removed. On the other hand, if there is a question of the mediastinal fixation, or if the patient is a relatively poor risk, the operation should be done in three or even four stages, and comparatively small amounts of the ribs should be removed. It must be remembered that the greater the length of ribs removed the more excessive will be the paradoxical respiration, with consequent increase in the mediastinal shift or flutter. For this reason a portion of not more than six of the lower ribs should be removed at any one operation. It is understood that a much less portion of the upper ribs is usually removed than of the lower ribs.

I should like to emphasize the removal of too great lengths of ribs, especially in borderline cases. After the incision is made and the chest wall exposed, with the object of producing as much collapse as possible, it is a severe temptation to carry the resection of the ribs a little too far, with the feeling that if a resection of four inches will do good, that of five or six will do more good, forgetting the additional strain on the mediastinum and hence on the heart and circulation of the patient.

I believe the condition of the patient before the operation, as well as during the operation, should determine the amount of ribs to be removed. I have found it necessary, prior to the operation, to have firmly fixed in my mind the maximum amount possible to be removed, and to adhere strictly to it, no matter how good the patients condition may be at the time of the operation. If the conditions at operation becomes bad the length of ribs taken may be shortened and the number of ribs removed reduced. Here, as in abdominal operations, it should be remembered that the incision is relatively unimportant, and that while it may have been made for the resection of six ribs, unless the patients condition warrants it, it is not necessary that all six should be removed, just because the incision has been made for their removal. To my mind it is best to err on the conservative side. I have always felt that a live patient with a collapse not entirely perfect is preferable to a dead one with the collapse just as it should be.

There has been considerable controversy as to which ribs, the upper or lower, should be first removed. Here again I feel that the operation should be suited to the patient. If the lesion is mainly an upper chest one it may be advisable to remove the upper ribs first, for should for some reason further operation be impossible

we would have accomplished more than had our rib resection been far removed from the site of the lung lesion. The converse would be the case were we dealing with a basal lesion. After phrenecectomy it is sometimes unnecessary to remove, so extensively, the lower ribs, but enough of them should be removed to destroy the costal arch, and to make possible a complete collapse after the sectioning of the upper ribs. The removal of the second and first ribs is technically the most difficult part of the operation. Care, patience and lack of too great haste, coupled with adequate exposure, gained by sufficient incision, and proper retraction will often convert an almost impossible accomplishment into a thoroughly possible procedure.

We use ethylene gas and oxygen as the anaesthetic for these cases, finding it more satisfactory than local anaesthesia or even nitrous oxide and ether. Glucose, prior to and just after operation, administered intraveneously, we have found most satisfactory in controlling nausea. Morphine should be used in sufficient quantities to control pain and cough.

The dangers to be kept in mind and guarded against are: (1) a lighting up of the other lung from an inspiration of pus from the diseased side, or from too great a burden being placed upon it. (2) Circulatory failure as a result of a myocordial condition overburdened by mediastinal flutter and loss of vital capacity, occasioned by the collapse. (3) Pulmonary oedema secondary to cardiac failure. (4) Extensive wound infection. (5) Spontaneous pneumothorax of the affected side. All but the last two, both rare conditions, can be avoided by a careful and painstaking selection of cases.

Many cases have been judiciously operated upon. Many others should be operated upon, but are fearful of the operation, because of the results in unwisely selected cases. All of the men doing this work have made mistakes, and I feel that I have made more than my share. My friends, the tubercular specialists in Asheville and elsewhere, have often prevented me from making more mistakes. I believe I have profited by the mistakes made, and because of them have become more careful in the selection of cases. Thoracic surgery has now reached the point where it is possible for the surgeon, with the aid of the internest, to say definitely and positively whether or not a given case can be benefited by surgery, and what the approximate risk will be.

Archibald says, "When a patient, who has been under medical treatment for a period of one or two years, has made clear his resistance by fibrosis, but has obviously reached a stage at which sanitarium treatment can accomplish nothing further, he should then, while he is in good condition, be considered as a candidate for thorocoplasty."

I also feel that we are being too lax in following up our phrenecectomy cases. The phrenic nerve operation seldom effects a complete cure. I would say that I have less than ten in a series of about one hundred and fifty cases. The operation does often do

much good and such cases should be taken at the height of their benefit and considered for thorocoplasty.

Again I wish to call attention to the fact that none of the procedures mentioned are employed for the cure of tuberculosis. They are employed to put the diseased lung at rest, and in this way to aid nature to "cure" the tuberculosis. None of the disease is eliminated or eradicated by any of the operations. The surgeon merely extends a helping hand to some of the unfortunate ones who are battling against tuberculosis, in the hope that he may possibly shorten their period of invalidism, or may convert a confirmed and hopeless invalid into a citizen of comparative usefulness.

THE PRESIDENT: The next number on our program is "The Importance of Rest in Tuberculosis," which will be presented by Dr. P. P. McCain, Sanatorium. This demonstration and exhibit comes to us from the Section on the Practice of Medicine.

DR. P. P. MCCAIN: Mr. Chairman and Members: I am glad that Dr. Herbert emphasized that thoracic surgery was done for the purpose of producing rest of the diseased parts. I had a few slides to illustrate the same points which he has brought out, so I will not take time to repeat those.

I want also to apologize for presenting this paper in a form so dogmatic as this one is, but in fifteen minutes it is impossible to back up your arguments on such a broad subject as this.

THE IMPORTANCE OF REST IN THE TREATMENT OF TUBERCULOSIS

P. P. MCCAIN, M.D., Sanatorium

Among the countless remedies advocated as a cure for tuberculosis, rest stands out as the one most essential, in fact, we may almost say the one essential. The failure of the general public and of a large per cent of the medical profession to fully appreciate the necessity of rest is largely responsible for the fact that The Great White Plague still numbers its victims by the thousands and the tens of thousands. Its ravages will continue until we understand fully that it is not climate, not raw eggs or the overstuffing with any special diet, not sleeping porches, not medicines or serums, but REST which is essential for its control—rest of body and of mind, rest for a period of months or longer, at first complete rest in bed and later bed rest combined with chair rest and mild exercise most carefully prescribed by a physician who fully appreciates the damage which can be caused by too much exertion.

A reasonably good diet and a reasonable amount of fresh air are very helpful also, but so they are for those who are sick with other diseases, and even for the maintenance of health in those who are well. Raw eggs tend to upset the digestion. Overstuffiing is often hurtful. Special climates, where the patient can be comfortable, are pleasant, but not essential. Almost equally good results are obtained in a well-run sanatorium, where rest is enforced regardless

of their location, whether north or south, east or west, in the mountains or by the sea. Sanatoria are needful, mainly because they give patients a chance to rest, and teach them how to take the rest cure.

The benefit to be derived from rest in active tuberculosis, to state it briefly, is brought about by a reduction of the rate and force of the heart and of the rate and depth of the respiration, thus limiting metabolism and reducing to a minimum the absorption into the circulation of the toxins from the tuberculous focus. The more complete the rest, both of body and of mind, the less will the absorption and the dissemination of these toxins be.

How complete and how prolonged the rest should be varies with the extent and the activity of the disease, and with the resistance of the individual patient. Those with extensive or very active disease, and those with serious complications, should, for an indefinite time, have absolute bed rest—bed baths, the bedpan, meals in bed, very little company, and should be allowed to do little or no reading or writing. Patients with moderate disease and mild symptoms should probably spend on an everage from 4 to 6 months in bed, being allowed to go to a nearby bathroom and probably to sit up in bed to eat their meals. After 4 to 6 months it is usually safe for such patients as have been free of active symptoms for several weeks, and whose lesions are not spreading, to begin sitting up some 20 or 30 minutes a day. After a week or two their time may be gradually increased, provided no unfavorable results appear; so that at the end of 2 or 3 months they are sitting up all day, with the exception of 1½ to 2 hours of bed rest in the morning and at least 2 hours in the afternoon.

It is usually safe for patients, after they have been able to be out of bed all day without untoward results, to begin mild exercise, such as 10 minutes slow walking daily. This may be gradually increased until at the end of 4 to 6 months they are taking from ½ to 1 hour's walk twice daily.

Unfortunately few early stage, or minimal cases come under the care of the physician. But even the earliest cases, if recently accompanied with active symptoms, should have 1 or 2 months bed rest. In addition to going to the bathroom it is probably also safe for minimal cases to go to the dining room in their bathrobes or dressing gowns. They should spend another month gradually getting out of bed, and another period of 3 or 4 months gradually increasing their exercise to the equivalent of about an hour's walk twice daily.

In determining how fast patients may get out of bed, or increase their exercise, physicians should be guided not by symptoms alone or even always by symptoms and physical signs alone. It is safe to have the additional advantage of X-ray films made at intervals of 3 or 4 months. Any increase in the extent or severity of the lesion is an indication, of course, for a return to bed rest.

Naturally, it is exceedingly difficult to get the average patient to carry out such a program of rest as above outlined. The nature

of the disease makes it difficult. Under bed rest, active symptoms in favorable cases of tuberculosis disappear rather rapidly: fever subsides, cough and expectoration diminish or disappear, the appetite and digestion become normal, and the weight is regained in a few weeks. The patient looks and feels so perfectly well that he thinks the doctor has made a mistake in saying that he had tuberculosis.

On the contrary, the lung lesion heals exceedingly slowly. Even under the most favorable treatment, it is months before any material improvement in the lung can be expected. Even physical signs change slowly for the better, and it is rare for X-ray films to show much improvement in less than 5 or 6 months.

This difficulty of getting the patient to take the rest cure inherent in the disease itself is made more real in most patients with tuberculosis by reason of their economic condition. It is natural for the bread-winner of the family, or the mother with several small children, to feel that it is necessary to carry on so long as possible. They think they cannot afford to rest for 6 months or a year. As a matter of fact, of all people, the poor can least afford not to take the rest cure as soon as their disease is discovered. It is the best possible investment which they can make. It will mean the saving of their lives, and frequently the restoration of their earnings or working capacity. On the other hand, if they fail to rest, they will in a relatively short time not only become total invalids, but will also, by superinfection, endanger the lives of all the members of their families.

It will require the utmost skill and patience on the part of the physician to secure the full co-operation of the patient in taking the rest cure. It will tax his ingenuity to get the patient to act as a sick man over a period of months when he feels and looks so well. Frankness, an insistance on strict compliance with instructions, sympathy, and the ability to inspire hope, are essential for the successful physician. Whether or not a patient should be sent to a sanatorium depends on the individual case. Most patients should, because their home conditions make the rest cure almost impossible, and because they also need the education that comes from association with other tuberculous patients. Oftentimes it is much easier for a patient to take the cure at home when he is confined to bed than when he is able to be up a part of the time. Frequently we advise patients, who cannot remain in the sanatorium as long as they should, to go home for their necessary period of bed rest and to return to the sanatorium for the months during which they will be gradually getting out of bed and increasing their exercise.

Unfortunately most patients cannot afford to go to private sanatoria, and most public sanatoria are so crowded that applicants have a long period of waiting before they can be admitted. Not infrequently favorable cases at the time of their application reach the hopeless stage while waiting to get in, simply because they will not stay in bed.

The value of rest in tuberculosis is strikingly illustrated in the various methods of applying rest locally to tuberculosis processes. The advantage of putting the tuberculous bone or joint at rest by applying a plaster cast is familiar to all. Tuberculous laryngitis used to be considered such a serious complication as to make the case almost hopeless. It is now known that the vast majority of reasonably early lesions of the larynx will entirely heal if the patients will only refrain from using their voices, and usually if they will only speak in a soft whisper. These lesions heal slowly, of course, requiring many months, but nevertheless, surely.

The most notable advance in the therapy of tuberculosis in our generation has been the development of pneumothorax treatment, which is only a method of putting the lung most diseased at rest by compressing it with air. All moderate and far advanced cases of unilateral or largely unilateral tuberculosis which do not respond readily to the routine rest treatment should have the benefit of this method of putting the lung at rest. In properly selected cases the results obtained are almost constantly good, and frequently they are spectacular. Toxic symptoms usually disappear rapidly, cough and expectoration diminish or disappear, and frequently sputum, which was loaded with tubercle bacilli, will become negative. Unless adhesions prevent, cavities are almost always closed.

Many patients who need pneumothorax treatment, however, can't take it because pleural adhesions prevent the collapse of the lung. Quite a number of such cases will be benefited by lying practically all the time on the side of the diseased lung, thus giving it partial rest while the good lung does most of the work of breathing. Shot bags and special chest splints or binders are sometimes used for the same purpose.

Another great advance in recent years has been the development of surgical methods for effecting the collapse of the lung in such cases.

Phrenicectomy, or phrenic evulsion, the removal of a portion of the phrenic nerve, causes a paralysis of the diaphragm on the side operated upon and thus brings about a partial compression and partial rest to the most affected lung. Cavities are sometimes closed, sputum is lessened and not infrequently becomes negative. The results are not usually as good as in pneumothorax, but the improvement is frequently very definite. It is a simple procedure in the hands of a skilled surgeon and should be used in patients who cannot take pneumothorax. This operation is often also used in conjunction with pneumothorax or other surgical procedures such as intercostal neurectomy and thoracoplasty.

Thoracoplasty is a much more extensive operation, consisting of the removal of the posterior portion of each of the upper eleven ribs. The operation should not be used except in cases in which the results from pneumothorax and phrenicectomy have been unsatisfactory, and in those whose contralateral lung is almost entirely normal. Its field is therefore much more limited, but in properly selected cases the results are remarkable. Many patients who

would have been doomed to chronic invalidism for life have by this operation been restored to health and to their former occupations.

These surgical procedures for putting the lung at rest are rarely necessary, except in those patients who are not fortunate enough to find their disease until it has reached the advanced stage, and in those more favorable cases who fail to take the rest cure as they should.

In spite of a tireless search by the best scientists of the world no specific has ever been found for tuberculosis. Nevertheless, if the rest cure is properly carried out, practically all cases of early tuberculosis can be cured, most moderately advanced cases can be arrested, and even many of the far advanced will become quiescent and be restored to a large degree of their former usefulness in society.

ENDOSCOPIC ASPECTS OF LUNG PATHOLOGY WITH SOME STUDIES IN PNEUMONOGRAPHY*

V. K. Hart, M.D., Charlotte

Recently I presented a paper on a similar title.[1] It is my purpose to avoid repetition of the subject matter then presented as far as possible.

In our section, endoscopy has apparently been looked upon merely as a means of removal of foreign bodies of the food and air passages. Recently, bronchoscopies over a ten weeks' period at our clinic were analyzed and of a total of 30, only 3 (ten per cent) were for the extraction of foreign bodies. In other words, endoscopy has a wide usefulness in a therapeutic and diagnostic way not usually appreciated.

The discussion is presented under this classification: I. Pneumonitis. II. Bronchiectasis. III. Extrabronchial Abscess. IV. Neoplasms.

I. Pneumonitis. I use this term in a definite sense: an inflammatory process involving any portion of the bronchial tree, perenchyma of the lung or both before cavitation of any type. This is the stage of a very acute inflammation tantamount to a powerful protective effort by nature.

The early stage of a pulmonary blocking is a pneumonitis. With bacterial decomposition of secretions, due to any type of obstruction of the air passages, there ensues a violent infiltrative reaction. If such continues, ulceration and breakdown of tissue occur with a resulting bronchiectasis or extrabronchial abscess, depending on whether the obstruction is in one of the larger or smaller bronchi.

A widespread infection of the lower air passages, without preceding obstruction may occur, whether due to chilling or secondary to an upper respiratory infection, and is merely a more extensive form of pneumonitis. Secondary breakdown of tissue may later occur as a complication with one or the other types of abscess. Apparently an infected embolus is more apt to give an extrabron-

chial abscess,[2] but here again there is first a pneumonitis, though localized.

In this stage external thoracic surgery is distinctly contra-indicated. Bed rest, high caloric feedings, postural drainage, and occasional bronchoscopy are alone indicated. The latter should be used if the drainage is profuse with the instillation of a bland, antiseptic oil.

As illustrative, this case is presented, since he well shows the various problems involved. A white male was seen in February, 1931, with a history of having inspirated a piece of popcorn three months previously. The mother states that he had coughed up the foreign body 19 days later. She had consulted a pediatrician because of the child's persistent cough.

X-ray study showed diffuse involvement of the right lower lobe, as indicated by a marked increase in density without true cavity formation. The child was at once bronchoscoped and a quantity of foul smelling pus evacuated from the right lower lobe bronchus. The child did well for a short period, but suddenly began to run a high septic temperature, and examination clinically and by X-ray showed a secondary involvement of the left lower lobe. This illustrates the socalled "internal circulation" of pus in the bronchial tree; a "slopping over" into the healthy side.

Culture of the pus showed a gram-negative bacillus, suggesting a Vincent's infection, and both gram-positive and gram-negative cocci. However, anaerobic culture produced only the cocci, and therefore argued against a Vincent's infection, which is, of course, anaerobic. Moreover, a blood culture also gave a gram-negative bacillus. Blood Wassermann was negative.

Nevertheless, he clinically improved with 4 injections of .3 gm. of neoarsphenanim intravenously. Repeated bronchoscopic drainage was also used. With such treatment the left base cleared, but the right base remained more or less *status quo.*

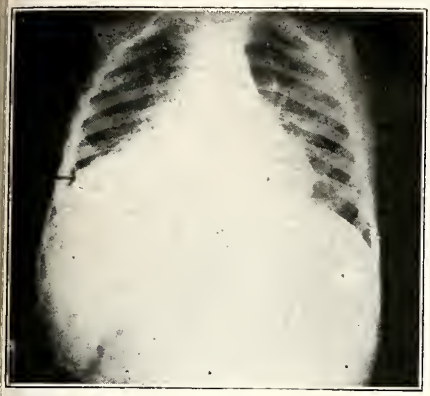
A surgical consultation was requested with the idea of doing a phrenicectomy. This was done, about 17 cm. of the nerve being avulsed under local anesthesia.

With the immobilization and partial collapse of the diseased area thus secured, a remarkable improvement followed. The sputum was reduced to about an ounce a day, with little odor; the hemoptysis was entirely checked; the temperature began to hug the normal line; and a persistent, racking cough was reduced to one morning paroxysm, with little the rest of the 24 hours.

Since leaving the hospital, the child has made rapid strides toward complete recovery.

Extrabronchial compression is another type of obstruction giving a pneumonitis. This gives a picture of a "drowned" lung simulating obstruction due to a foreign body with cough and temperature. The following case well illustrates the salient points.

The patient was a male white child, aged seven months, referred on 1/10/31, for supposed foreign body of the left bronchus. There



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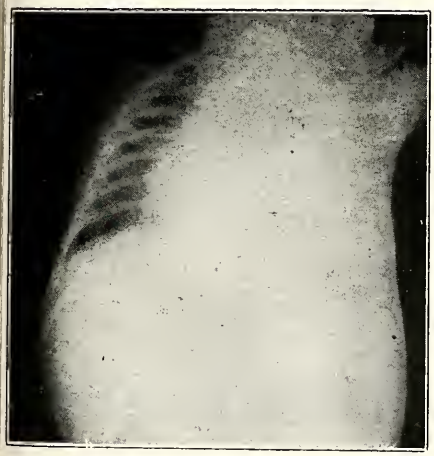

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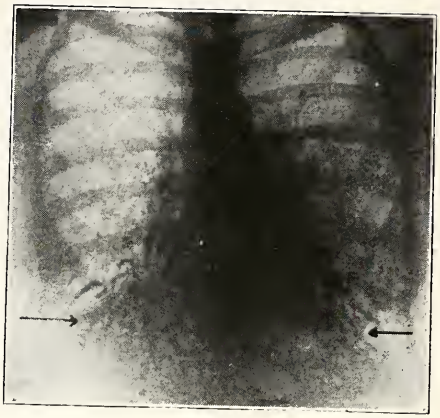

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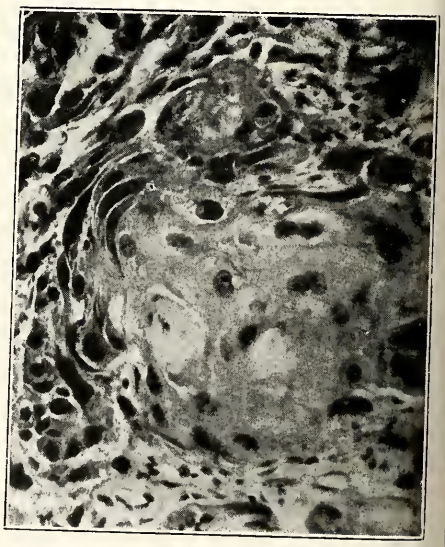

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was a persistent barking cough and marked elevation of temperature.

Bronchoscopy showed a reddened left bronchus with the lateral wall definitely compressed with marked occlusion of the main stem bronchus. No foreign body was seen, although the X-ray showed a typically "drowned" lung with a partial atelectasis on that side, as we would expect from foreign body occlusion of the main stem bronchus.

An intradermal tuberculin test of ½ mg. was "doubtful to negative." The blood count was: W. B. C. 28,800; hgb. 58%; polymorphonuclears, 38%; lymphocytes, 44%; large mononuclears, 14%; transitionals, 4%. Culture of the aspirated material showed a diphtheroid and a coccus typical of the streptococcic group. No tubercle bacilli were found.

After four bronchoscopies, the child became temperature free, gained weight, and the cough practically disappeared. Observation since shows that this child has made a complete clinical recovery.

Comment: In the first case the phrenicectomy and not the bronchoscopy deserves the credit for the clinical improvement. Furthermore, it probably prevented a very acute suppurative pneumonitis from progressing to a frank abscess cavity. Bronchoscopy here was of value only in establishing the diagnosis as to type and location beyond the peradventure of a doubt, and in ruling out a residual foreign body.

A very intense pneumonitis follows any type of obstruction. If promptly relieved, as unfortunately was not done in the first case, prompt recovery occurs. The temperature usually subsides in 24 hours if a foreign body is removed in the first 48 hours.

The cause of the extrabronchial compression in the second case was probably an enlarged gland, though the type of hypertrophy can only be guessed. The most common form in a child is a tuberculous gland, though the negative tuberculin test argued against this. Hodgkin's disease and the leukemias will give similar involvement of peribronchial or mediastinal glands. Occasionally a mediastinal neoplasm will give tracheal or bronchial compression. There was no evidence in the blood count of a blood dyscrasia.

II. Bronchiectasis. This is not uncommon. Two illustrative cases are briefly cited.

Case 1. A white female, aged 55 years, was first seen in consultation 2-9-'31 because of a productive cough and loss of weight.

Bronchoscopy showed a reddened, thickened, bronchial tree, with considerable thickening of the left lower bronchus. (Two successive biopsies were negative for neoplasm.) Much thick pus was aspirated which gave no growth on culture and showed no tubercle bacilli. Lipiodol was instilled and X-rays taken, which showed an extensive bilateral, multiple bronchiectasis, worse on the right.

No causative factor could here be demonstrated. With bilateral involvement, the benefit from a right phrenicectomy was questionable. Our surgical consultant, therefore, only gave a blood trans-

fusion because of a concomitant anemia. She was bronchoscoped three times with no marked improvement.

Postural drainage only was then advised, because of the chronicity and poor outlook for complete recovery. Because of her age, generally poor condition, and extensive bilateral involvement, no chest surgery could be conscientiously advised. She has improved considerably under conservative management.

Case 2. The second case is most interesting, because it occurred in a white girl only 20 years of age. She also was seen early in 1931. She was referred because of chronic cough, the history of which dated back at least several years.

Examination showed a frank suppurative antrum and ethmoid of the left side. The sputum was not more by actual measurement than 2 ounces in 24 hours, and was negative for tuberculosis. However, pneumonography carried out at bronchoscopy showed an extensive bilateral multiple bronchiectasis out of all proportion to her clinical picture. She was running no temperature.

She has been advised, of course, to have her sinus condition treated by radical operation, as this is in all probability an exciting factor. (This will be done at the end of her school year.) With such an extensive bronchiectasis in one so young, it may well be presumed that this patient has a congenital type, the occurrence of which Hedbloom[3] stresses. A secondary infection may later occur.

Comment: Bronchoscopy in these two cases was of tremendous value diagnostically by means of lung mapping. Such showed immediately the site and extent of the pathology, and treatment could be directed accordingly. Contrast media roentgenography will demonstrate these cases where usual X-ray study fails.

III. Extrabronchial Abscess. The antecedent factors in these cases usually fall into one of these classes: 1. An acute respiratory infection. 2. General anesthesia, particularly when accompanied by surgery in the mouth or throat. 3. Foreign body.

The first is, of course, a progressive type of infection. The second may operate by giving obstruction with foreign material or an infected embolus. The third is, of course, frank obstruction. Yet, in all, there is probably at first a pneumonitis before real bronchiecestatic or extrabronchial tissue destruction with resulting abscess.

The following case demonstrates an excellent therapeutic response bronchoscopically. She was a child, aged 6 years; first seen in consultation 12-3-'30 because of productive cough of malodor. The history showed that the condition followed a pneumonia nine months previously.

The patient presented the typical picture of a chronic chest condition with marked clubbing of the fingers. X-ray showed what was probably a cavity in the left upper chest. Even with good stereopscopic plates, it was very difficult to tell whether this was in the very lower part of the upper lobe, or upper part of the lower lobe. After several bronchoscopies, we could say positively that

fetid pus was coming from the left upper lobe bronchus. The sputum was repeatedly negative for tuberculosis.

This child made a complete clinical recovery, and has remained well, following seven bronchoscopic aspirations carried out at weekly intervals. She became temperature free, gained weight, and the cough ceased. This course of treatment was carried out under hospital management.

Comment: This case certainly shows what can be accomplished, even in the chronic stage, by conservative measures. Bronchoscopy here probably played an important part in the recovery. Also, it determined the exact location of the abscess.

All such cases do not so respond. If after two months of bronchoscopic drainage, there is no improvement, surgical consultation certainly should be sought. Those cases which do not communicate freely with a bronchus are particularly unfavorable for bronchoscopic drainage. The aid of the chest surgeon is at times indispensable.

IV. Neoplasms. New growths in the lung are much more common than formerly supposed. Bronchoscopy by bringing into direct view the bronchial tree for inspection and direct biopsy, has greatly enlarged our knowledge. Three cases are tersely recapitulated.

Case 1. A white man under observation for nearly two years now, aged 45 years, was originally seen because of a productive cough. Bronchoscopy showed a definite stricture of the right lower lobe bronchus, behind which was foul pus. Lipiodol instillation demonstrated a multiple bronchiectasis of the lower lobe.

For a while he improved with occasional dilatation and aspiration. We were thrown off our guard because the first biopsy was reported as chronic pyogenic tissue. A phrenicectomy was finally advised. This was carried out under local anesthesia by our surgical consultant. He did not do well, and was referred to the Jackson Clinic at Jefferson Hospital for consultation. Their biopsy sections were returned as squamous cell carcinoma. When the man returned, I did a third biopsy, and seven out of nine pieces showed squamous cell carcinoma. The error was mine in not taking enough tissue at the first biopsy.

This man, as a result of his phrenicectomy, combined with deep X-ray therapy has made amazing progress. His cough has practically ceased, there is no sputum, he has gained weight, and he is now up and around, whereas, before he had become bedfast and despondent.

Funk[4], in reviewing 61 cases, states that only one was alive after six years, and most of them died in the first 18 months. It will be interesting to see the final outcome, though he already has done far better than the average. His bronchiectasis and suppuration was, of course, secondary to his neoplastic bronchial obstruction.

Case 2. This patient was a white male, aged 58 years, sent for bronchoscopic examination 11-10-'30. His complaint was cough and loss of weight. An unusual X-ray picture could not be accurately interpreted by either the surgeon or roentgenologist. Repeated

sputum examinations were negative for tuberculosis. He was running a slight elevation of afternoon temperature.

Bronchoscopy showed the left lower bronchus almost completely closed by thickened, reddened tissue. Biopsy was done. Because of its interest, the pathological report is quoted: "There is an abundant engorgement of the arterioles with polymorphonuclear cells and a definite peri-vascular plasma cell and lymphocytic infiltrate. There is some hyalinization of the vessel walls and an endarteritis. There is no sign of neoplasm or tubercle. Some of the vascular changes are quite characteristic of lues, but are not absolutely diagnostic in this specimen."

The Wassermann and precipitation tests were all four plus, which confirmed the above report. The therapeutic test was given and in two months he showed marked improvement, as shown by X-ray.

A second biopsy done at this time was reported as follows: "We find no evidence of neoplasm in this specimen. There is, however, definite evidence of a chronic infection of the mucosa and submucosa. In the deeper tissues, the infiltrate and the vascular changes are characteristic, but not pathognomonic of syphilis."

This man has continued to improve under treatment. This is probably, then, a true syphilis of the lung, which is rare.

Case 3. A man, aged 43 years, had an enucleation of the left eye done in this clinic in 1925. The pathological report was sarcoma of the choroid. This year he returned with chest symptoms, and X-ray revealed extensive metastatic growths in both lungs. This case is briefly mentioned because of its interest, particularly with respect to the time interval between the primary lesion and the metastasis. The outlook is hopeless.

Comment: The first two cases well illustrate the value of bronchoscopic biopsy. The first case shows the importance of repeated biopsy, if necessary. In the third case, biopsy, of course, was not necessary for the diagnosis, because of the previous history.

Summary: Bronchoscopy in lung conditions has these advantages other than the removal of foreign bodies: 1. Direct inspection of the bronchial tree for neoplasm. 2. Direct biopsy if necessary. 3. Direct aspiration for therapeutic and cultural studies. 4. Determination with exactness of lobe involved. 5. Instillation of medication. 6. The instillation of lipiodol for lung mapping. This is of greatest value in demonstrating a bronchiectasis as distinguished from extrabronchial abscess.

Phrenicectomy in a unilateral pneumonitis and unilateral bronchiectasis has given us rather dramatic results in two cases. In properly selected patients it is a safe, simple procedure and well worthwhile. This, of course, is done by the consulting surgeon. Future chest surgery that may be necessary is not contra-indicated by the operation.

The closest co-operation is essential between the bronchoscopist, the internist, the roentgenologist and the surgeon. I desire to stress this point. No one means of therapy is universally successful.

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CURRENT TRENDS IN MEDICAL PRACTICE

Dr. Morris Fishbein

Editor Journal of the American Medical Association

Within the last fifty years scientific medicine has made greater advances than in the fifty centuries previously. It has freed mankind from the fear of disease. It has advanced the expectation of life at birth from 33 years, a rate still prevailing among savages, to 55 years for civilized man. For most of the infectious diseases it provides specific methods of prevention and cure. To persons who formerly would have died inevitably in a short time from diabetes it offers insulin; to those who would have died promptly from pernicious anemia it offers liver extract; to the sufferer from the incurable Addison's disease, it provides a new extract from the cortex of the adrenal gland. Even those with the mysterious invasion of the brain by new growths and tumors can take advantage of the marvels of modern surgery. New studies have been made on the care of the mentally defective. What other profession can produce so enviable a record!

It is not surprising that an enlightened public, aware of these facts, should demand of the medical profession some scheme of organization to provide in increasing measure the best type of medical service for all the people at a price that they can afford to pay. The public has seen motor cars reduced in price to meet the purse of almost any one capable of making a living without reducing profits to manufacturers. The vastly developed mail order houses and chain stores, through group buying and selling, have been able to lower the prices of various commodities. Hence it is argued that similar organization in the field of medicine will enable the physician to lower the prices of medical services greatly and thus to bring them within the reach of any worker.

For centuries tradition in medicine has demanded that the physician give freely of his services to those unable to pay. For centuries physicians have rendered such service and have depended on their incomes from those able to pay to give them a reasonable return on their investment. Few of the public realize the extent of that investment. The modern physician has put in at least two years

in a university, four years in a medical school, a year or two years as an intern in a hospital and perhaps a year or two as an assistant before he begins to earn a living. His education has cost him approximately $1,200 a year, and does not take into account the money that he might have earned in some other occupation, the interest on the investment, and the equipment of his office when beginning practice. It is safe to say that there is an outlay of from $12,000 to $20,000 before the physician begins to earn. If this sum were invested for him at 20 years of age he might be financially independent at the age of 50—but how few physicians really are! The investigations indicate an average annual income for doctors of from $3,000 to $4,000.

A modern scientific diagnosis is a costly procedure. It includes, first of all, the careful taking of a history of the patient in order to trace the effects of heredity and constitution. It demands the application of all the five senses to inspection, percussion, auscultation and to other methods of physical diagnosis. It includes the use of laboratory methods that extend the senses of man and magnify them—the microscope, the stethoscope, the electrocardiograph, the ophthalmoscope, the otoscope and the manometer.

The devices for measurement that have been described are supplemented by laboratory tests and by the use of the X-ray. It is possible to measure the function of the kidney, the heart, the lungs and the liver. It is possible, with the X-ray, to witness the workings of the gastro-intestinal tract and to determine the presence of abnormalities in many of the internal organs. But the application of all these measures is increasingly costly. Already the price of complete study is beyond what the average man can be expected to pay unless he is exceedingly provident or unless he is willing to turn his Christmas savings fund from a radio to the care of his health.

The medical treatment of a patient with a severe disease or the performance of a surgical operation is also far more costly than the public understands. It demands under the best of circumstances hospital conditions. It has been declared that the rich and the poor get the best of medical care, but there is a difference. The rich man gets a private room, freedom from economic stress, numerous changes of private nurses and constant attention. The poor man gets scientific medical attention, about one-twentieth of the time given in a ward by one nurse, and constant worry as to whether or not the family still has a home and something to eat and to keep them warm. It is impossible to separate economics from the problem of medical care. Disease and death are the result of many more factors than mere medical diagnosis and medical treatment. They are equally the concern of those who provide food, fuel and housing, as witnessed by the diseases that are inevitably associated with deficient diets, with cold and with exposure.

Hospital development has been one of the most remarkable phenomena of the current century. In order to conserve the efforts of physicians and to distribute them more widely, and in order to apply to patients all the advances of modern medicine, hospitals

have increased steadily. In 1909 there were 4,359 reasonably good hospitals in this country. In 1930 there were 6,719, an increase of 54 per cent. In the same time the bed capacity rose from 421,065 to 955,860, an increase of 127 per cent. At least two-thirds of all physicians licensed to practice in the United States now have connection with these institutions. Of these 98,491 physicians who do much of their work in the hospitals, about 45,000 are specialists in a particular field.

The specialist in medicine has developed in response to the tremendous development of knowledge and technic. Whereas, twenty years ago only 15,000 specialists were available, there are now some 50,000. Furthermore, at least 50 per cent of the young men graduating from our medical colleges have chosen their specialties previous to graduation. The hospital makes available to the specialist or to the general practitioner all the refinements of diagnosis that have been mentioned. It makes available also modern nursing care, treatment by physical therapy, by the X-ray, massage, hydrotherapy and similar methods. So greatly has diet come to be significant in the care of the sick that the number of dietitians has increased enormously. It may be estimated that the number of people caring for the sick today includes not only the 150,000 physicians but also some 1,850,000 others, such as pharmacists, nurses, technicians, orderlies, dietitians, cooks, maids and ambulance drivers.

This great expansion in the nature of medical practice has made it seem possible to many social workers and philanthropists that still greater organization would do much to lower the price of medical care. They urge, indeed, that the doctors be still further specialized, sitting all day in one spot, the hospital, wherein the patients pass in a steady stream before them, much as the Ford chassis receives the tender ministrations of the nut and axle specialists in Mr. Ford's mammoth manufactory.

Unfortunately, doctors have been inclined to leave the direction of medical institutions too greatly to lay control. The business directors argue that the public gives the doctor a hospital as a place in which to work, and that it is none of his business how the place is run and who provides the finances. Nothing could be more fallacious. The doctors make the hospital. Without them it is merely four walls and a lot of medical apparatus. Its merits cannot surpass their merits. The medical staff is the hospital. Who picks a hospital because it has a fine operating room rather than a competent surgeon?

Practically every plan yet developed for changing the nature of medical practice involves standardization of doctors and standardization of patients. The success of the practitioner in the past has depended on the ability of the individual physician to realize the needs of the individual patient and to satisfy them.

Dr. Willard C. Rappleye, dean of Columbia University College of Physicians and Surgeons in New York, expressed the opinion of every great leader in medicine today when he said: "Any plan, whether developed from within the profession or imposed upon it

from without, that lessens the responsibility of the trained physician in the care and treatment of patients or denies him the rewards of individual effort and superior ability will, in the long run, be detrimental to the public welfare."

In the United States today hundreds of experiments in changing the nature of medical practice are under way. They include anything from the grouping of physicians under one roof for making easily accessible the services of a variety of specialists to the Public Health Institute for the treatment of venereal disease in Chicago, which treats with salaried physicians some 1,800 patients each day.

The development of the group seemed logical as soon as medicine began to be specialized. The committee on the cost of medical care of the American Medical Association has just completed a survey of groups. It indicates that there are about 150 group clinics in the United States, with an average of about twelve doctors per clinic. The average net income of 301 doctors in twenty-seven private group clinics was $9,747 in 1929. The facilities and personnel of group clinics enable them to render medical care with economies that may be shared with the patients of such organizations.

The medical profession has made no definite protest against such attempts to lower the cost of medical care. The system is applicable only under certain conditions and cannot provide for the constant care of the sick in rural districts. Although the group idea is more than a quarter of a century old, the fact that there are only 150 such clinics indicates that the group is not the complete answer to the problem. A properly organized group maintains the personal relationship between patient and physician. The nearer the group tends to the nature of big business the less likely it is to meet this objection. Financial considerations tend to make some groups apply such methods.

The system called contract practice includes numerous modifications, varying from the simple relationship between a physician who contracts with a single individual for a specified sum to take care of all of his medical needs during the years, to the system whereby a corporation contracts with a group of physicians for a fixed sum to take care of all the medical needs of all employees and their families for a year. At its best this is a debasement of scientific medicine. In the first place, the responsibility of the physician is to the employer and not to his patient. In the second place, the necessities of business rather than the needs of the patient dominate the picture. Cases are known in which a contract practitioner has had to see seventy patients in a single day. They almost had to meet him naked on their doorsteps if he was to provide anything more than a careless and perfunctory examination. The contractor must break even on his contract. Builders have been known to skimp materials and even to wreck buildings as a result of underbidding on a job.

In 1927 the judicial council of the American Medical Association gave special attention to this problem. It found that there are conditions under which contract practice is not only legitimate and

ethical, but in fact the only way in which medical service could be provided for the community concerned. It mentioned, for instance, cases in which a large number of workmen are employed remote from cities, as in mining or logging camps. It mentioned certain industries wherein by law large employers of labor are compelled to provide certain medical services to employees. It recognized that there are communities too small to offer sufficient inducement to a competent physician to cause him to locate there.

The judicial council formulated, however, certain conditions that absolutely establish a contract as being unfair and unethical. Certainly, when the compensation received is inadequate, as based on the usual fees paid for the same kind of service by the same class of people in the community; when the compensation is so low as to make it impossible to render competent service; when there is underbidding by physicians in order to secure the contract, and when a reasonable degree of free choice of physician is denied those cared for, contract practice is unfair, unscientific, unethical and harmful, both to the public and to the medical profession.

More than twenty-five nations are experimenting today on their people with what is called compulsory health insurance, the panel system, socialized medicine, communistic medicine and state medicine. There is not a single country in which the method there existing has been established as a success. Such methods represent standardization with the glorification of mediocrity. When human beings are put at a level in relation to any of the affairs of life, that level is invariably a low level. The philanthropist who wants to standardize medical care for the mass invariably has the best of highly personalized care for himself when he is sick. The personal physicians of Henry Ford, Edward A. Filene, John D. Rockefeller and Julius Rosenwald could no doubt recite some remarkable anecdotes of the medical idiosyncracies of these remarkable organizers of modern medical care. The social workers who direct the philanthropic activities of these enlightened leaders know where to pick the best of personal doctors for themselves. Moreover, when they do go into the clinics they somehow manage to get the kind of personal attention that is not generally bestowed upon the multitude.

Among other experiments in medical practice are part-pay and over-pay university clinics, endowed hospital clinics, institutes for various diseases, and similar institutions. All are experiments that the medical profession will watch with interest. Today the profession holds fast to its view that medicine cannot be put on such a basis until human beings in general are robots.

The American people have more automobiles than all the rest of the world together. They spend around a billion dollars annually for cosmetics, two billion for cigarettes, and incredible sums for baseball games and motion pictures. Annually they put half a billion dollars into Christmas savings, which they withdraw late in December and blow for knicknacks, pretties and radios. The medical bill of the nation is approximately three billions of dollars, of which at least one billion is wasted on quacks and charlatans, on patent

medicines and bogus apparatus. Around one hundred million dollars is spent annually on preventive medicine. To an intelligent reader such statistics need neither interpretation nor comment.

Insurance authorities are convinced that voluntary health insurance could be sold to the American people at reasonable cost if only they could be educated to health insurance as they have been to life insurance. Under such a system there might be free choice of physician and sufficient funds to meet the bills for hospital care. Greater organization of physicians around hospital and laboratories would tend to lower the cost of the overhead.

Physicians must not be debased to the position of salaried employees of the state, of insurance companies or of commercial organizations. That way lies the destruction of individual initiative, the lessening of responsibility, the lowering of standards and the reduction of a great profession to the cellars of oblivion.

(Applause.)

THE PRESIDENT: The Vice-President will now surrender the gavel to President Murphy.

PRESIDENT MURPHY: The next paper on the program is "Early Diagnosis of Pellagra," by Dr. Verne S. Caviness, of Raleigh, N. C.

THE EARLY DIAGNOSIS OF PELLAGRA

VERNE S. CAVINESS, M.D., F.A.C.P., Raleigh

In view of the rapid spread of Pellagra in the Southern part of the United States in the past 25 years it is natural for us to become interested in the ways and means of checking the spread and lowering not only the mortality, but also the morbidity. With other chronic wasting diseases the prognosis depends on an early diagnosis; so in Pellagra the best results are obtained in the treatment of cases in which diagnosis is made in the incipient stages, without waiting for dermatitis and neurological signs.

Pellagra is a disease found principally in tropical and sub-tropical countries, and occurring usually as sporadic cases, but also in epidemic and endemic outbreaks. The malady is characterized by digestive disturbances, loss of appetite, lassitude, malaise, weakness, nervousness, dizziness, pains in the extremities, burning in the feet and hands, gingivitis and glossitis, menorrhagia, dermatitis, neurological disturbances, including various forms of dementia and neuritis and often terminating in death.

The name of the disease is derived from a combination of Greek and Latin words meaning rough or smarting skin, and it is on this symptom that the diagnosis is usually made.

Written records of the disease clearly extend over a period of two centuries, and early Greek and Egyptian writings suggest the possibility of such a condition having been in existence at that time.

Joseph Goldberger recognized the fact that: "Although the fully developed disease makes a picture which, when once seen, can hardly

ever fail to be recognized even by one who is not a physician, the diagnosis of the disease is by no means always easy, because the fully developed cases form only a small proportion of the total."

The cause of the disease is unknown. Joseph Goldberger, who has done more investigative work on Pellagra than anyone else, was positive that diet played the entire role of causation. Other men, who have been in a position to give the subject possibly a more intensive study than Goldberger, are of the opinion that infection alone is the cause of Pellagra. My own investigations indicate that probably both diet and infection play major roles in the etiology.

Many observers have noted two types of Pellagra:

1. True Pellagra—characterized by dermatitis and neurological changes.

2. Pellagra sine Pellagra—characterized by no dermatitis.

Since in successive years, the two types may be seen in the same individual, we are justified in considering the possibility of dealing with a disease that varies in intensity and in some symptoms, but having common general characteristics. Many observers are of the opinion that there is only one type, and that in the condition of Pellagra sine Pellagra the process is not sufficiently severe to produce dermatitis.

Closely resembling Pellagra is a condition of infancy known as Acrodynia, Erythroedema or Infantile Pellagra. It is a constitutional disease of infants, of unknown etiology, characterized by irritability, poor sleep, burning and itching of the hands and feet, followed by an erythematous eruption appearing usually first on the face, chest and abdomen, and later on the hands and feet, lasting from a few weeks to many months or even years and terminating usually in recovery.

In Acrodynia, according to McCrae, "there is a change in disposition, with irritability and discomfort; the child is fretful and miserable. Photophobia, anorexia, weakness, slight fever occasionally, and increased pulse rate occur. The rash is variable in character, sometimes like prickly heat. It may fade and reappear. 'Erythema' and 'eczema like' are terms used to describe it. The color varies from pink to dark red. Marked itching and excessive perspiration occur. Hands and feet are red, swollen and cold, are compared to raw beef and show desquammation. Stomatitis and gingivitis with loss of teeth may be present. There may be loss of hair and nails. Disturbance of sensation is common and there is a varying degree of hypotonia and pseudo-paresis. Peripheral neuritis and changes in the spinal cord and nerve roots have been found. The children are subject to respiratory disorders."

Based on postmortem findings, as well as on clinical observations and studies, many observers consider Acrodynia to be a juvenile Pellagra and not a distinct disease entity. It will be noted that the skin eruption is not always present.

Pellagra presents many symptoms and marked variation in intensity of symptoms, not only in different patients, but in different recurrences in the same individual. Distinctly different types of dermatitis may appear at different times in the same individual.

Careful studies made of Pellagrous patients, going into detail regarding the history of previous attacks, have revealed that some symptoms antedate the first appearance of dermatitis; also that the same symptoms are present in the interim between recurrent attacks. It is also noteworthy that these same symptoms appear in various degrees of intensity in almost all cases of Pellagra.

Although the eruption is the main reliance in the recognition of Pellagra, the eruption is frequently so late in making its appearance that some careful studies have been made of the other symptoms of Pellagra, which while not so spectacular in appearance as the eruption, are more constantly present, and are of more value to the clinician from the standpoint of therapy based on an early diagnosis of the disease.

SYMPTOMS

Indigestion. The earliest symptom to appear in almost all cases of Pellagra is indigestion. This symptom practically never disappears, even during the winter remission of symptoms.

The onset is insidious. The patient can rarely set any definite date of onset. Frequently, the patient is sure that indigestion was inherited —has been present throughout life. Other patients state that they have always had indigestion. Others have always had to be careful of the diet because some foods disagreed with them.

There is marked variation in the intensity of this symptom. In some patients, it is very slight, but usually it is sufficiently severe to cause the patient enough discomfort to induce him to seek medical advice or take home remedies for relief. The symptoms often simulate gastric or duodenal ulcer. Nausea may be present. Gaseous eructations, and a sense of fulness or burning in the epigastrium are very frequently encountered symptoms.

It is quite interesting in studying a series of such cases to note the total absence of free hydrochloric acid in almost all cases—either being completely absent as a true achylia or achlordydria or absent throughout a portion of the period of digestion. Other cases, however, present a curve that is low throughout digestion, though never dropping quite to an achlorhydria.

The striking resemblance of this picture to the digestive secretory curves seen in pernicious anemia cannot escape observation. It is probable that as in pernicious anemia, the achlorhydria or achylia may be a congenital defect in many cases.

As would naturally be expected, there is an early loss of appetite, doubtless due directly to the failure properly to digest ingested food. The patient also is afraid to eat a properly balanced diet for fear of aggravating the indigestion. The first foods eliminated from the diet are those highest in protein content. Finally, the patient attempts to subsist on a diet composed principally of carbohydrates, since such foods are most easily digested and do not require free hydrochloric acid for the digestive process. The result is the diet usually considered most conducive to the development of Pellagra. Many observers have commented on the fact that Pellagra often occurs

in persons who subsist on an unbalanced diet, although living with non-pellagrous persons who eat normally balanced diets.

Lassitude: Usually, the second symptom to appear in Pellagra is malaise or lassitude. The patient loses interest in everything and has little energy. Often there is an uneasy feeling. At times the condition is characterized by "I don't know how I feel." This group of symptoms has a slow onset with a gradual increase in intensity.

Nervousness: Nervousness is another of the constant symptoms. Often it is present very early in the disease—at times being noted before any other symptoms are given much consideration. The patient gradually becomes more nervous with various types of nervousness being seen. Some patients show no outward manifestations of nervousness, while others present it to extreme degrees. In this stage, a diagnosis of hyperthyroidism may be made unless a Basal Metabolic Study is made.

The patient is often emotional, and with very little control over the emotions. Tremor of the fingers, muscular twitchings, restlessness and faintness are frequenlty encountered. Often a diagnosis of nervous indigestion is made.

Dizziness: Dizziness and vertigo are often seen at about this stage of the disease. Swimming in the head is experienced and the patient is often afraid to walk alone for fear of falling. These symptoms are most marked following or during exertion.

Pain in legs: Following this, there is likely to be pain in the legs, without radiation, and burning in the feet and hands. Weakness in the legs is usually an associated symptom. There are sensations of heat and tingling, at other times one encounters numbness and loss of sensation in the extremities.

Diarrhea or Constipation: Diarrhea is prone to appear at about this stage. It may never appear, or it may be the first symptom noted. Some Pellagrins have an obstinate constipation, but very little or no diarrhea. Many patients have alternating attacks of diarrhea and constipation.

The cause of the diarrhea has never been determined. In one recent series of cases in Oklahoma, Entamoebae Histalytica were found in 29% of persons studied. Parasites or cysts were found in smears made through a proctoscope—even in cases presenting normal stool examinations. Other observers have not found amoebae in feces. With this method of search, more positive smears may be found.

Stomatitis: Stomatitis frequently appears at the next stage. It may be the first symptom noted. In one case in a child I failed to find much evidence of any mouth infection. The degree of infection varies. Some patients will show only a red line about the teeth; others will present ulcerated gums, tongue and throat. At times, the teeth become so loose that they can be removed by the patient by hand. The tongue becomes quite red, scarlet around the edges, and is protruded with difficulty. It is often furred. Superficial ulcerations, especially around the margins of the tongue and on the mucus membranes of the mouth and throat are often seen. Fissures about the mouth margins are also often present.

In my entire series of cases I have found indentical infections in the mouth of all cases. There are two types of organisms ordinarily seen:

1.—A spirillum.
2.—An amoeba.

The amoebic gingival infection associated with an achlorhydria and diarrhea is, to say the least, suggestive of some causal relationship.

Stomatitis is often so severe as to destroy any remaining semblance of appetite the patient may have. This symptom tends to become more aggravated until death or a remission intervenes.

Menorrhagia: Menorrhagia is frequently present, and may last for several weeks. At times there is a profuse flow and rest in bed may be required to help check it.

Dermatitis: Dermatitis is present in about 80% of cases. Usually it does not appear for several weeks after the onset of early symptoms. A remarkable discoloration, which at first is red and erythematous, presently becomes more pigmented, so as to resemble a condition of extreme sunburn. The skin becomes not only dark, but thickened and rough, and presently also cracks, or fissures may occur and desquammation follows. It may subside and recur and it may spread to the face and other parts—usually symmetrically. There is a well-defined line of demarcation between the erythematous or pigmented parts and the normal skin immediately adjacent to it.

Suppuration at times occurs and is quite resistant to treatment.

Rarely, dermatitis is the first symptom noticed. Such patients state that they are very subject to sunburn, and frequently attribute the dermatitis to a few minutes exposure to the sun.

Dementia—Neuritis: The neurological signs appear late in the disease, usually after several remissions. Probably, the early signs of tingling, burning and numbness are early stages of the general nerve changes. Occasionally such a severe grade of neuritis develops that any movement is painful. Such patients often are unable to feed themselves or make other voluntary movements.

Following early evidences of neuritis sooner or later nervous symptoms of a serious nature are added. These may take the form of progressive weakness, but more often they may simulate some gross intracranial change on account of the severity of headache with vomiting and giddiness, semi-coma, and even optic atrophy or optic neuritis. Hallucinations are common, and not a few of the patients become actually insane, though this does not happen as a rule until the disease has been present for some time.

ADVANTAGE OF EARLY DIAGNOSIS

Once there is definite change in the central nervous system, whether it be in the brain or cord, the deterioration is likely to be permanent. While the process may be stopped, regeneration can scarcely be expected. So, in order to prevent permanent damage to the central nervous system, a cure must be effected before the later symptoms appear. In other words, the disease must be arrested before the onset of neu-

rological symptoms, and preferably before dermatitis appears. It is also important to anticipate, so far as possible, the earliest nervous manifestations, since even such early symptoms often are associated with some beginning changes in the central nervous system.

It is well to bear in mind the fact that we are not dealing with an acute disease, but with a chronic, progressive, wasting disease which, like pernicious anemia, tends to present remissions and recurrences. Also, we are dealing with a disease that can be arrested at any time in its progress.

It is impossible to make a correct diagnosis in all cases at the beginning of any disease, but by careful study of prodromal symptoms and of the signs and symptoms as the disease progresses, the percentage of errors in diagnosis can be reduced. In this respect, Pellagra is no exception and does not differ from other diseases.

A diagnosis of Pellagra should not be made in every nervous patient who complains of indigestion; but there is a train of symptoms that should make every clinician think of Pellagra. When a patient presents such symptoms and findings the conventional treatment for Pellagra is as good a treatment as is known and certainly is not contraindicated; in many instances, such a diagnosis and treatment will constitute the difference between restoration to health and a life of semi-invalidism. After Pellagra has advanced to the stage of central nervous system involvement, permanent damage has been done.

The early signs and symptoms to which I wish to call your attention are, low gastric acidity or achlorhydria, indigestion and loss of appetite, lassitude, malaise, weakness, diarrhea, often alternating with constipation, glossitis, stomatitis and gingivitis, especially if associated with a sore tongue with ulcerations or a scarlet margin. If the symptoms of pains and burning in the extremities are allowed to appear, permanent injury has begun.

The earlier the diagnosis is made, the better the end results of treatment can be.

ECTOPIC PREGNANCIES COMPLICATING NORMAL PREGNANCIES

Oren Moore, M.D., F.A.C.S., Charlotte

Since extra-uterine pregnancy is a fairly frequent occurrence (1.5%), it is obvious that it will occasionally be found as a complication of other pelvic diseases. And, since normal pregnancy is a very frequent happening, one should not be surprised to find extra- and intra-uterine pregnancies appearing concurrently, and yet in actual experience such happening is relatively rare. I am able to find only twenty-eight recorded cases, in spite of the fact that many more must be available. My own experience has been restricted to two such cases, and that of my colleagues to only two or three more.

The history of ectopic pregnancy, its incidence and its treatment forms one of the romantic passages in the annals of operative obstetrics, but no more startling feature in this fascinating study

has ever developed than the simultaneous occurrence of extra- and intra-uterine development, nor is it likely that many more difficult diagnostic situations can be discovered. In the light of our present knowledge, we know that fertilization of the ovum regularly occurs in the tube, and that failure to proceed into the uterine cavity results in tubal and ectopic development. It is difficult, therefore, to understand how, after normal implantation on the uterine mucosa has occurred, a subsequent development in the tube can accrue, and yet it seems to be a fact that it can and does for in most recorded cases of concurrent intra- and extra-uterine pregnancies, the tubal units is obviously much younger than the one in normal situ. It is an interesting line of thought when one wonders if the two pregnancies are the result of a twin fertilization, one member being able to reach natural destination in the uterus, while the other is arrested in the tube. It is still more interesting to wonder if the tubal member is a socalled supra-imposed pregnancy. Doubtless the true mechanics of origin will be difficult to ascertain, but the facts of diagnostic and treatment difficulties will remain.

In my two cases both patients were known to be pregnant (each was a primipara) and were under regular prenatal care. Each, at about the third month, began to complain of more or less severe pelvic pain, accompanied by bleeding (really "spotting"), and both were suspected of threatening abortion. In the first case, after prescribed rest in bed, the symptoms having subsided, the patient was allowed to resume her normal life, and while attending a bridge party suffered a typical tubal rupture with collapse and shock. I was much puzzled to account for this serious happening, but did suspect at this late hour tubal pregnancy, opened the abdomen and found a long rent in the left tube, peritoneal cavity full of blood, and a demonstrable tubal conception. The usual operative procedure, accompanied by blood transfusion, resulted in recovery, and the intra-uterine pregnancy proceeded unaffected to term. The second case was almost identical with the first, with the unfortunate exception that expulsion of the normal pregnancy resulted four days after operation for tubal rupture.

Recently, in a local hospital, a still more complicated case of this type came under our observation: a patient known to be two months' pregnant developed severe pain and profuse bleeding, was diagnosed as an inevitable abortion and the uterus emptied by a very competent surgeon. Her recovery was immediate and satisfactory and she returned to her home in a nearby town within a week's time. Two or three weeks later seized with sudden, sharp pain in the side, resuming her bleeding, suffering rather marked shock; she was returned to the surgeon, who, upon discovering a mass in the pelvis, blood in the cul-de-sac, hurriedly opened the abdomen and revealed a live fetus, apparently about four months in development, free in the abdominal cavity, with all evidences of a well-established extra-uterine origin.

The diagnosis of this interesting condition depends upon the same factors that are present in simple extra-uterine pregnancy,

but these factors are much beclouded by the presence of a normally situated pregnancy, and one can do little more than conclude that some intra-pelvic catastrophe has occurred and act accordingly. From the available records, it would seem that following operation for the ectopic member, abortion from the uterus is likely to occur in about fifty per cent of the cases, and such an event will doubtless depend upon individual methods of handling, previous uterine irritability, subsequent pelvic disturbance, etc.

My conclusions are: (1) That concurrent intra- and extra-uterine pregnancies are not excessively rare, (2) that etiology is difficult to trace, (3) that diagnosis is largely impossible, (4) that operation is generally successful, (5) and that abortion of the uterine member is frequent.

The President: We will now have a paper by H. D. Lineberger, representing the State Dental Society.

H. D. Lineberger, D.D.S.: To the Medical Society of the State of North Carolina: I bring you greetings from the dental profession of the state and from the North Carolina Dental Society. We truly appreciate the privilege of taking part in this program, and we hope that this will be the best and most successful meeting you have ever held.

THE RELATIONSHIP BETWEEN MEDICINE AND DENTISTRY

H. O. Lineberger, D.D.S., Raleigh

Mr. President, members of the North Carolina Medical Society: The members of the North Carolina Dental Society would have me bring greetings and to assure you of our appreciation for your kind invitation to meet with you and to participate in your program. It is our wish that the 78th Annual Meeting will go down in history as one of the best you have ever had.

In reviewing the relationship of the medical and dental professions in North Carolina, we find there are many things which have brought the activities of our professions closer together. In a very brief way I shall touch on a few of the more salient causes, and also bring to your attention some of the very valuable results already accomplished.

In a paper, "Is There a Need for a Closer Co-operation Between the Physician and Dentist?" read before this Society last year at Pinehurst, Dr. J. Martin Fleming, a member of the North Carolina Dental Society, very ably discussed many of the early problems of our professions, and very clearly answered in the affirmative the question asked in the title of his paper. It is, however, necessary that I review some of the points brought out by him, in order that I may more clearly show various stages in our professional life which have been more or less the causes for our friendlier relationship.

In the earlier days of our profession, a dentist was primarily a mechanic. He usually chose dentistry because he had a certain

mechanical turn or tendency in that line. The colleges spent a greater part of their time in teaching their students operative and prosthetic technic, giving very little attention to the health service. The dental graduate found himself entirely interested in the task of relieving local pain and restoring lost tooth structure.

The operation of extracting teeth was considered an exceedingly ordinary procedure, and was performed by all physicians, drug clerks, landlords or anyone who happened to possess a rusty pair of forceps. In fact, the only patients who sought the service of a licensed dentist were usually those of the higher class, who felt they could afford to have their teeth filled with gold or possibly a new set of teeth made primarily for appearance.

It was perfectly natural that a profession trained to restore lost tooth structure should do everything in its power to treat and save every tooth, not once thinking of the various systemic envolvements we were possibly causing. As the demand for dental service increased, many young men sought a dental education. This, of course, flooded the dental colleges, and in many cases caused the establishing of schools which were of low standards. This period of changes in the professional educational system gave birth from the medical side to such professions as osteopathy and the chiropractor. To our profession it gave the advertising dental parlors. While in this more or less confused state of educational standards, the Carnegie Foundation came to the rescue and made their famous survey of both medical and dental schools. Rather than be exposed, many schools closed their doors, and many others were forced to improve their standards. This standardization of education gave to both professions a higher and much needed self-respect and also created in each a higher respect for the other.

In the professions, as in most every other walk of life, necessity brings about many changes or reforms which would otherwise be very slowly realized. There was no great reformer who can be given credit for bringing about a closer co-operation between the physician and the dentist, while on the other hand, when it was found to be an act of extreme expediency and a great improvement in the class of professional service which we might render the patient, we see it gradually being realized.

The coming of the X-ray did much to reveal many hidden abnormalities. It was the use of this machine which brought to many dentists the sad realization that the restoration he had thought perfect was a most dangerous foci of infection.

Soon after the X-ray became generally used in the field of diagnosis we find scientific men in both professions studying, in detail, infection in its various ramifications of the body. It was the knowledge of this definite work which was being carried on in the various scientific laboratories, which led the famous Dr. Charles Mayo to make the statement, which was in substance, that the next great advancement in health service should come from the dentist. All are familiar with just what did happen and how it has made our professions more dependent on each other.

Many of the more enthusiastic members of both professions went in for a 100% removal of all possible foci of infection, but, as usual, it was the rational and conservative minded who brought us to our more constructive thinking selves. However, it was during this period that we were brought into closer co-operation with each other. Today we find ourselves at that point where no reputable physician or dentist would dare treat a case with any complications without the aid and service of the other. No hospital or diagnostic clinic would think of passing on a patient's true condition without a definite report from a dental surgeon of known ability and unquestioned reputation.

In North Carolina, the great work our State Board of Health and other State agencies are doing along the line of corrective, preventative and educational medicine, combined with the various publicity agents, has created a health-minded people. They are not only consulting us individually, but to a great degree measuring our professional ability by our willingness to consult with others in the associated fields.

Getting more specific as to the friendly relations already established in our State, I would call your attention to many joint medical and dental societies already established in counties like Wayne, Pitt, Guilford and others, with occasional joint meetings in practically every county and city in the State.

A few years ago, the officers of both the State Medical and the State Dental Societies sought to arrange a joint meeting of the two societies, and with your permission, I am going to read the report our committee made to the State Dental Society meeting in Asheville last year.

Quote: "The first definite suggestion for a joint meeting of the two societies came out of a conference of Dr. L. A. Crowell, president of the North Carolina Medical Society, and Dr. I. R. Self, president of the North Carolina Dental Society, at their home town of Lincolnton. Both presidents were anxious for a better fraternal relationship between the two societies, and immediately set about to arrange for such a meeting.

The Councilors of the North Carolina Medical Society met in Raleigh in May, 1929, at which time the suggestion of the two presidents relative to the joint meeting was brought up for discussion. At this meeting the North Carolina Dental Society was officially represented by Dr. H. O. Lineberger. After some discussion the Councilors voted to invite the members of the North Carolina Dental Society to meet in joint session with the North Carolina Medical Society at Pinehurst in April, 1930, and instructed the representatives of the North Carolina Dental Society to transmit such an invitation to the meeting of the North Carolina Dental Society at Wrightsville Beach, held in June, 1929.

The invitation was extended to the North Carolina Dental Society, but on the same date which the invitation from the Medical Society was presented, a lengthy letter was received from Mr. Tufts,

owner of the Carolina Hotel at Pinehurst, stating that it would be impossible to entertain both societies at Pinehurst in April. This letter precluded our acceptance of the invitation of the Medical Society until further negotiations could be had.

The incoming president was instructed to name a committee to confer with a similar committee from the North Carolina Medical Society relative to arranging a joint meeting. A committee, composed of Drs. J. Martin Fleming, J. S. Spurgeon and H. O. Lineberger, chairman, was named.

In a letter, under date of June 19th, Dr. L. B. McBrayer, Secretary of the North Carolina Medical Society, was duly notified of the action of the North Carolina Dental Society. The president of the Medical Society was notified of our action by their secretary. On December 31st, a copy of Dr. McBrayer's letter, addressed to Drs. Parrott, Burrus and Murphy, of the North Carolina Medical Society, was received. To quote one paragraph: 'The purpose of these two committees, as suggested by the State Dental Society, is to take under consideration the matter of holding a joint meeting of the State Dental Society and the State Medical Society, the idea suggested by some of the dentists being that the meetings be held in the same town, with one-half day of the State Medical Society program to be devoted to matters that would be of mutual interest and to be attended by all dentists, and perhaps one-half day session of the State Dental Society to be likewise planned and held, to which all fellows of the State Medical Society would be admitted.'

In a letter dated January 2nd, addressed to Drs. H. O. Lineberger, J. T. Burrus and J. G. Murphy, Dr. James M. Parrott suggested that Dr. Lineberger call a meeting of the joint committee. After conferring with all members of the joint committee, a meeting was called January 15th at the Sir Walter Hotel, Raleigh. All members of the committee were present and all phases of the joint meeting gone into, and the following action taken:

First: That the North Carolina Medical Society invite the North Carolina Dental Society to send representatives to appear on their program (two papers) and that a delegation of not less than fifty dentists to visit the meeting of the North Carolina Medical Society meeting at Pinehurst in April.

Second: That the North Carolina Dental Society invite the North Carolina Medical Society to send representatives to appear on our program (two papers) and a delegation of fifty members of the North Carolina Medical Society to the state meeting in Asheville.

It was also recommended that permanent Liaison Committee from each society be appointed.

In other words, if the committees from the two societies have interpreted the sentiments of the two societies correctly, a closer relationship is desired, and for that reason we felt that an exchange of essayists and a visiting delegation from one society to the other would stimulate interest in a joint meeting.

The official invitation as recommended, was issued by the officers of the two Societies.

Dr. J. Martin Fleming and Dr. J. S. Betts were named to present papers before the North Carolina Medical Society. Both papers were excellently written and ably presented, and made a profound impression on the members of the Medical Society. Forty fraternal delegates attended the medical meeting at Pinehurst on Tuesday, April 29th.

We wish to thank Drs. Parrott, Murphy and Burrus for the genteel and co-operative attitude manifest in their deliberation with our committee looking forward to a closer relationship between the two Societies. The committee wishes further to thank Dr. H. H. Briggs and Dr. Standing Norman for the able papers they have presented, and every fraternal delegate from the Medical Society for the sacrifice in time they have made in visiting our meeting, and we hope that in the near future the plan may be repeated."

A direct result of our co-operative efforts was manifest in the recent Legislature, where members of the medical and dental professions were found fighting shoulder to shoulder against the abolition of certain boards and for other constructive measures. The members of the dental profession are especially grateful to Drs. Burrus, Hardy, Killian, Ruffin, DeHart, Long and Rogers, who were members of the Legislature and who aided in the passage of the Burrus-Johnson Bill, which placed a dentist on each County Board of Health. Dr. Burrus was a co-sponsor of the bill.

We are grateful to all the members of the North Carolina Medical Society for your splendid co-operative spirit, and trust that our understanding of each other will grow as the time passes, to the end that it will be of mutual helpfulness and a very beneficial and lasting service to our mutual patients and to the public.

At the request of President Murphy, the Secretary read the following letter:

MEDICAL SOCIETY OF VIRGINIA

Richmond, Virginia

April 20, 1931.

Dr. J. G. Murphy, President,
North Carolina Medical Society,
Durham, North Carolina.

Dear Dr. Murphy:

Your very kind letter was received several days ago, and I had fully intended to be with you and all of my friends today and tomorrow, but at the last moment find it impossible to do so.

This is really unfortunate for me, for I had anticipated my visit with a great deal of pleasure, and I regret exceedingly that an important engagement here will prevent my attendance at the meeting. I know you will have a fine session.

Remember me to any inquiring friends, for I always feel that I am still a real part of the State Society, if a very inactive one.

Again with thanks and best wishes for a fine meeting—my heart is with you—I am,

Sincerely yours,

(S) J. ALLISON HODGES,
President.

On motion of Dr. Ben J. Lawrence, the Secretary was directed to send a letter of regret and sympathy to Dr. G. T. Sikes, of Youngsville, who had recently suffered a stroke of paralysis.

On the statement of Dr. D. R. Perry that Dr. J. M. Templeton, of Cary, is sick and unable to attend the meeting, the President requested the Secretary to send a message of sympathy and regret to Dr. Templeton.

The Secretary, Dr. McBrayer, announced a registration of 784 doctors up to this time—the largest registration at a meeting in the history of the Society.

The Secretary then read the following telegram from the President of the Southern Medical Association, Dr. Felix J. Underwood:

Jackson, Miss., April 22, 1931.

Dr. L. B. McBrayer, Secretary,
North Carolina State Medical Society,
In Annual Meeting Assembled, Durham. N. C.

Greetings and best wishes to you, Dr. Murphy, and each member of the association present. I am depending on North Carolina for a record-breaking membership and attendance at the New Orleans meeting of the Southern Medical Association. Bring all the North Carolina boys with you to New Orleans and enjoy the best program in the history of the Association.

FELIX J. UNDERWOOD.

Dr. McBrayer, Secretary, expressed his appreciation to the chairmen of the sections at this meeting and many past meetings and commended the idea of having each section nominate its own chairman.

ELECTION OF MEMBERS OF STATE BOARD OF HEALTH
THIRD GENERAL SESSION

WEDNESDAY, APRIL 22, 11:20 A. M.

President Murphy: The hour has arrived for the election of four members of the State Board of Health, two for a term of four years, and two for a term of two years. Nominations are now in order.

The following nominations were made:

Dr. Carl V. Reynolds, Asheville, by Dr. Paul H. Ringer, Asheville. Seconded by Dr. C. H. Cocke and Dr. Eugene M. Carr, Asheville. (For four-year term.)

Dr. James M. Parrott, Kinston, by Dr. Grady G. Dixon, Ayden. Seconded by Dr. J. W. MacConnell, Davidson. (For four-year term.)

Dr. L. B. Evans, Windsor, by Dr. Albert Anderson, Raleigh. Seconded by Dr. K. G. Averitt.

At this point Dr. Julian A. Moore, Asheville, offered the following motion: That in electing the members of the State Board of Health, the two nominees receiving the highest number of votes on the first ballot be declared elected to serve each for a term of four years, and that the next two nominees elected serve each for a term of two years. The motion was seconded by Dr. L. A. Crowell and was put to vote and carried.

The following further nominations were then made:

Dr. L. B. Farthing, Wilmington, by Dr. W. H. Moore, Wilmington. Seconded by Dr. J. T. Hoggard.

Dr. S. D. Craig, Winston-Salem, by Dr. J. L. Spruill, Jamestown.

Dr. S. D. McPherson, Durham, by Dr. D. R. Perry, Durham. Seconded by Dr. R. E. Nichols, Durham.

Dr. John R. Irwin, Charlotte, by Dr. H. D. Stewart, Monroe.

On motion, duly seconded and carried, the nominations were closed.

The President announced that only members in good and regular standing in the Society are entitled to vote. He then appointed the following to serve as tellers: Dr. P. P. McCain, Sanatorium; Dr. R. F. Leinbach, Charlotte; Dr. C. F. Strosnider, Goldsboro; and Dr. Will Craven, Charlotte. The Society then proceeded to cast its first ballot.

(At this point, while the tellers retired to count the ballots, the President proceeded with the regular program set for the Third General Session, which was completed. The General Session then recessed, and the Conjoint Session convened, the latter adjourning at one p. m. After adjournment of the Conjoint Session, the General Session reconvened at 1:05 p. m. to hear the report of the tellers.)

The tellers reported that on the first ballot 180 votes were cast, 91 being necessary to elect, and that the count showed that Dr. Carl V. Reynolds and Dr. James M. Parrott had received 149 votes each and Dr. L. B. Evans 107 votes. The President declared Dr. Reynolds and Dr. Parrott each elected for a term of four years and Dr. Evans elected for a term of two years. No other nominee received a majority of the votes on this ballot.

Dr. John R. Irwin, with the consent of Dr. Stewart, who nominated him, withdrew his name.

A second ballot was cast, resulting in no election. The Society then proceeded to a third ballot. Dr. Perry withdrew the name of Dr. McPherson, and balloting proceeded on the remaining nominees, Dr. Farthing and Dr. Craig. On this ballot Dr. Craig received a majority of the votes cast and was declared elected.

The general session then adjourned at 1:35 p. m.

CONJOINT SESSION

OF THE

Medical Society of the State of North Carolina

AND THE

North Carolina State Board of Health

The Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health convened in Lecture Room "C" of the Washington Duke Hotel, Durham, Wednesday, April 22, 1931, and was called to order by Dr. A. J. Crowell, President of the State Board of Health, at 12:25 p. m.

President Crowell announced that the Acting Secretary of the State Board of Health had been called home during the morning because of serious illness in his family, and that in his absence his report would be read by Dr. L. B. McBrayer, Secretary of the Society.

Secretary McBrayer read the following report:

ANNUAL REPORT OF THE SECRETARY OF THE NORTH CAROLINA STATE BOARD OF HEALTH

H. A. Taylor, M.D., Acting Secretary

Mr. President and members of the Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health:

On November 15, 1930, the fifty-first biennial report of the North Carolina State Board of Health was submitted to his excellency, Governor O. Max Gardner.

It is not possible now in a report of this scope to outline many details of extension work being carried on by all the individual sub-divisions of the State Board of Health. However, this report is in printed form and gives in detail the duties performed by the various divisions. These reports may be obtained by applying to the Secretary of the State Board of Health at Raleigh. There are, however, some features of our public health program which should be considered.

North Carolina was the twelfth State in the Union to recognize governmental responsibility for the protection and promotion of

the public health, and to create a governmental agency specifically charged with the duty of meeting that responsibility.

In the seventies, Dr. Thomas Fanning Wood of Wilmington caught the vision of the possibility of public health work to the State. How fully he realized the far-reaching consequences of his idea, how clearly he saw the ever-growing hosts of lives saved as a measure of his vision and inspiration, can not be told. It is true, however, that the vision never left him, and that under its sway he worked through the Medical Journal, which he edited, and through the North Carolina State Medical Society, until his influence reached the people of the State, and in their General Assembly of 1877, with the effect that on February 12, 1877, legislation was ratified creating the North Carolina State Board of Health.

Under this legislative enactment, the Board, in the beginning, consisted of the entire membership of the State Medical Society. There was an annual appropriation of $100.00. The State Medical Society undertook to discharge the duties imposed upon it through a committee.

Two years of practical experience proved that such an organization did not meet the public needs, and in 1879 the General Assembly reconstituted the Board, setting up a membership of nine; six appointed by the Governor and three elected by the State Medical Society, the term of office being five years. From time to time since, there have been revisions and amendments, but basically, the organization plan of the State Board of Health has remained unchanged during its fifty-one years of useful life.

The present organization of the State Board of Health, as you all know, consists of nine members—five of whom are appointed by the Governor and four of whom are elected by the Society. The plan of organization embodies two important administrative policies, the wisdom of which have been tested and proved through the many years of practical experience, namely, stability of organization, permanency of policies and partnership of the State and medical profession in the conservation of human life.

The stability of the Board of Health in the past has depended upon its freedom from political tinkering. The divorcement of the Board of Health from politics was due largely upon the manner of selecting the members of the Board. This stability of organization is a responsible factor for the permanency of policies adopted by the Board.

The second administrative principal included in the organization of the State Board of Health is the recognition by the State of the fundamental relation of the medical profession to the work of disease prevention.

The State Board of Health realizes fully and clearly that whatever public health in the conservation of lives may mean, it is the profession's own offspring. It further realizes that no public health program of any consequence has ever been carried to a logical conclusion without the whole-hearted support of the medical profession of the State. It realizes further the debt of society to that profes-

sion by which nearly all the experimentation and discovery on which disease prevention is based, with the exception of the work of Pasteur, was contributed.

The wisdom of such co-operation has been exemplified through the rapid expansion of health work in North Carolina during the past twenty-one years. On July 1, 1911, North Carolina established its first fulltime County Health Department. Other independent organizations followed these early beginnings. Progress was, however, very uncertain up to 1917, when State financial co-operation was introduced into North Carolina. Within these comparatively few years, today the State has in excess of 1,883,047 of its population enjoying full-time health protection, which represents the population of forty-four counties.

There have been no changes in administration or policies of the State Board of Health since the last report was rendered to this Society, with the exception of those necessarily brought about through the reduction in the State Board of Health's appropriation for the fiscal year 1930-31. The consolidation of Bureaus and the elimination of personnel was found necessary to meet the drastic cuts requested by the Budget Commission. The Bureau of County Health Work was abolished as a separate and distinct division of the State Board of Health, and the duties of this office transferred to the office of Central Administration. Also, the services of the director of the Bureau of Epidemiology were dispensed with, and this duty transferred to the Executive Office. Likewise, it was found necessary to consolidate the Bureaus of Health Education and Vital Statistics under the direction of one medical director. It was also found necessary to eliminate the field nursing staff of the Bureau of Maternity and Infancy.

The total reduction requested amounted to $116,000.00. This, the Board accepted, and so molded its public health program to comply with the Governor's request. Although handicapped by shortage in personnel and unable to make the desired extensions in the public health program, the State Board of Health is glad to state that harmony and co-operation have prevailed, and that it has enjoyed one of its most fruitful years in the field of public health.

Communicable disease control, one of, if not the most important functions of the Board, has been continued most satisfactorily, as is evidenced by comparative death rates. In 1914 the death rate from all causes in North Carolina was 12.4 per 100,000 population; in 1930 it was 11.3. Typhoid fever per 100,000 population in 1914 had an appalling death rate of 35.8, and in 1930 it dropped to 4.4. Diphtheria in 1914 had a rate per 100,000 population of 16.0; in 1930 it had a rate of 7.8. Infant mortality, that is, mortality under one year of age, per 1,000 live births, in 1914 was 90.3. This dropped in 1930 to 77.6.

While communicable diseases are decidedly on the decrease, the degenerative diseases are increasing. In 1917 there were 7,765 deaths in North Carolina due to degenerative diseases, giving a rate of 318.9 per 100,000 population; in 1929 there were 12,286 deaths,

giving a rate of 412.9 per 100,000 population. In 1917 there were 2,863 deaths from communicable diseases in the State, giving a rate of 117.6 per 100,000 population; in 1929 there were 870 deaths, giving a rate of 29.2 per 100,000 population. This is an accomplishment for which the profession of the State and the Board have every reason to feel proud.

Pellagra is increasing by leaps and bounds. It is appearing in practically every section of the State. The death rate from this disease is exceedingly high. During the year 1930, there were 1,002 deaths due to Pellagra. The death rate has increased from 11.5 per 100,000 population in 1922 to 31.7 in 1930. The State Board of Health has conducted an intensive campaign for the prevention of Pellagra through the co-operation of the Home and Farm Demonstration Agents and the Extension Division of State College. Results of this educational campaign have been most gratifying.

In conclusion, let me state that the medical profession of the State and the State Board of Health are confronted with one of the most, if not the most, important public health problem. That is, the correction of physical defects so frequent among the school population as to have appropriately acquired the term "common defects of school children." On one point we all agree—the corrections must be made. The points of difference are: when, how and by whom?

"Train a child up in the way it shall go, and when it gets old, it will not depart therefrom," is evidenced by the fact that the heart of the medical profession of North Carolina has been so sincerely and unselfishly interested in the public health work of the State that peace, confidence and concord reign among us, and the Board comes to you today with complete faith in your continued support.

President Crowell: We shall be glad to have a full discussion of this report and of the work of the State Board of Health and any criticism or suggestions you care to make.

Dr. McBrayer: As all of you know, the present members of the State Board of Health are about to retire. I imagine that no one except the members of the State Board of Health has any general idea as to the immense amount of thought and the immense amount of real work that it requires to serve as a member of the Board; and these members of the State Board of Health, like the members who served before them, have given the best that they could give, and they have sacrificed time, money, and thought in the furtherance of their duties as they saw them. I know that every member of this Conjoint Session, every fellow of the Medical Society of our State, feels with me that we owe them and we willingly give to them our sincerest appreciation for the splendid work they have done for us and bid them Godspeed now and always. I move that we adopt the report of the Acting Secretary of the State Board of Health by a rising vote of thanks and appreciation.

Dr. Albert Anderson, Raleigh: I should like to say just a word here, because I feel that the retiring members of the Board merit some expression more than has been given. The profession in the state has been mighty good to me; they have given me many honors. I was once a member of the State Board of Health, many, many years ago. I know something about its duties and the sacrifice that these men have made, and I know the personnel, I expect, as well as any man in North Carolina. Every member of this Board has served well and has made sacrifices, and I feel that they have the cordial goodwill and gratitude of every member of the North Carolina State Medical Society. It is a great pleasure for me to second the motion of Dr. McBrayer.

The motion was put to vote and carried by a rising vote, with applause.

President Crowell: On behalf of the members of the Board, I wish to thank you for this expression. I have always felt, just as I feel now, that the medical profession is behind the work of the State Board of Health. I am not saying anything about the individuals, but you have for more than fifty years, or about fifty years, backed the work of the State Board of Health; and without your support and help the Board could never have accomplished what has been accomplished in the state of North Carolina. We appreciate your expression of gratitude, not for the present Board, but for the work that has been done by the State Board of Health these many years.

We shall now have a report from Dr. H. H. Bass on the cancer-control work in the state.

Dr. H. H. Bass, chairman of the North Carolina Committee of the American Society for the Control of Cancer, read the following report:

As State Chairman of the North Carolina Committee of the American Society for the Control of Cancer, as constituted and appointed by the Medical Society of the State of North Carolina, I hereby submit the following Annual Report to the State Board of Health, the Medical Society of the State of North Carolina and the Conjoint Session of these two organizations.

The following resolutions were submitted to the Conjoint Session, the State Board of Health, and the Medical Society of the State of North Carolina at their Annual Meeting in Pinehurst, 1930.

(1) That all medical centers in the State be urged to organize and equip permanent cancer clinics for the diagnosis and thorough treatment of cancer.

(2) That the question of a central hospital properly equipped with diagnostic facilities, radium, deep therapy X-ray, high frequency apparatus, and all things else necessary to the successful treatment of cancer, be submitted to a joint committee composed of representatives from the North Carolina Hospital Association and the Board of Councilors, their conclusions to be presented to this Conjoint Session at its meeting in 1931.

(3) In the event such an institution be approved, this Conjoint Session should submit, for acceptance or rejection, definite proposals for a research cancer board composed of the members of the Medical Society of the State of North Carolina.

(4) That all physicians and hospitals not equipped for the diagnosis and treatment of cancer, avail themselves of the service necessary to proper treatment through contacts and arrangements with hospitals and cancer clinics equipped to give such service as modern medicine and surgery furnishes and demands.

(5) That all general hospitals adopt a cancer service with standards set forth by the American Society for the Control of Cancer.

(6) That the public be educated to frown down upon inadequate treatment, quacks, charlatans and cancer cures.

(7) That an earnest effort be continued to educate the people that cancer can be cured when taken to physicians in the precancerous and incipient stages.

(8) That the profession be urged to use the State Laboratory of Hygiene and private laboratories for the diagnosis of suspected tissues.

(9) That the Legislature be urged by this Society and individual physicians to continue and increase financial support for the purpose of reducing the death rate of cancer in the State of North Carolina.

Your Chairman, acting under the advice of the American Society for the Control of Cancer, has earnestly endeavored to follow the plans of instructions as advocated by this organization.

The Society's work may be described as a campaign of educational information with regard to cancer, its nature, origin, diagnosis and treatment and its distribution throughout the United States and Canada.

The means employed in giving out the available information comprise practically all the methods known to public agencies, and includes lectures, newspaper and magazine articles, moving pictures, radio talks, posters, circulars, handbooks, a periodical, and private correspondence. The intention has been to maintain only the highest standards of excellence in these productions.

The Society holds that the ignorance and apathy with which cancer is popularly regarded must be overcome. People must be taught to act before their sensations compel them to do so. The action which they take must be of the right sort. It is of vital importance to act promptly and properly, as the essence of cancer control as that subject is understood today, is to induce patients to seek good medical advice upon the earliest possible discovery of the symptoms. In no other disease is this so imperative.

It is a fundamental belief of the Society that the information and advice which it gives should be encouraging and helpful, so far as that is possible. No attempt has ever been made to frighten people into doing what they should do. The incurable nature of advanced cases is never stressed; the great suffering which follows neglect is not described; the repulsive features are not detailed. The Society's slogan is, "Fight Cancer with Knowledge, in early treatment lies the hope of cure."

We believe the efforts to disseminate information on cancer control should be continued throughout the year, but from time to time periods of unusual activity such as cancer clinic week should be initiated. With this object in view your committee has made intensive efforts to

make the second week in October, a State-wide Cancer Clinic Week. These clinic weeks are preceded by intensive campaigns of publicity extending over a period of from four to six weeks before the appointed time. These clinics, such as the Society favors, are of two principal kinds—temporary clinics, which may be brought about in a community chiefly for educational purposes, in connection with the Society's campaigns; and the permanent clinics which are established under suitable auspices, with the assurance of sufficient talent and money to enable them to succeed as permanent institutions.

These temporary clinics afford an opportunity for the local physicians to obtain a good deal of information about cancer, and the Society finds that the interest and endeavors of doctors are stimulated by endeavors of this kind.

The second kind of clinic is the permanent one. Sufficient funds are raised, and generally a hospital is devoted to the diagnosis and treatment of cancer cases, or to diagnosis alone. A hospital is the proper place for a cancer clinic if it can be suitably established there, because of the equipment and personnel which are thus made available.

With respect to both diagnosis and treatment, there is need of competent attention for persons who cannot afford to pay the fees which able cancer specialists customarily receive. Prompt and proper medical attention should be within the reach of them all, and the Society holds that those patients who can afford to pay for first-class care should be charged suitable fees for it; but that no one, because of financial disability, should be deprived of the skill upon which his life depends, so long as philanthropic persons can be found, who are willing to help provide the needed facilities.

Experience has shown that if people cannot obtain good medical attention they will put up with the other kind; and the surest way to drive the public to the enumerable quacks who infest the country is to advise them to go to specialists whose charges are beyond their means.

Cancer clinics properly managed afford a considerable measure of protection against quacks and quackery, and as such should be endorsed by the medical profession.

The auspices under which clinics, whether of the temporary or permanent type, are established, should be instituted and maintained with the full knowledge, approval and coöperation of the organized medical profession.

In summing up the work done by your committee for the past two years, I herewith submit the following report:

Forty-one counties conducted publicity campaigns; 17 counties conducted clinics and publicity campaigns; 42 counties made no efforts toward cancer control work; 600,000 pamphlets and bulletins of cancer literature were distributed during these years.

Unremitting efforts have been made and are now being made to interest religious, business, civic and social organizations on the subject of cancer control. Constant correspondence and newspaper publicity stressing the need for organization has been carried on.

Talks have been made before these organizations and in the various educational institutions of higher learning in the State. Papers on cancer and its control have been delivered at the County and District Medical Societies.

The second week in October in both years was designated cancer week throughout the State. Prior to these dates as stated before, 600,000 cancer control bulletins were distributed.

The press was flooded with the importance of cancer control. Radio talks were made from stations in Greensboro, Raleigh, Charlotte and Asheville. The press was again and again filled with newspaper articles. Motion pictures have been shown to the schools and talks made on cancer. A survey of the hospitals of the State was made to ascertain their facilities for treating cancer. Personal letters were written to every doctor in the State to find out the number of cancer cases they had in their practice. Reports were requested from the counties that held clinics to ascertain the number of people examined during these clinics.

Your committee finds its work limited for the lack of funds. It was most unfortunate that the appropriation of $5,000.00 had to be cut for lack of income. This limited the work and reduced our personal efforts. For lack of these funds we were unable to make actual contact with many of the counties that should have held publicity campaigns and clinics.

The American Society is recommending for the coming year's work, that we direct more of our efforts to the rural districts in such a way as to come in actual contact with these people. They have advised that your committee, through the State Board of Health, employ someone to visit these sections and promote cancer control work through their county fairs by motion pictures, lantern slides, short talks and distribution of literature at these meetings. They believe many can be reached in this way who would never know of the story of cancer control. They further advise that a public health nurse be employed to devote her entire time to the Womens' Clubs, the schools, Parent-Teachers' Associations, and other civic organizations. They believe in this way by personal contact, that more benefit will be derived.

We find that in 42 of the counties of North Carolina no effort has been attempted to educate the public to the importance of cancer control, and only through personal contact can these sections be reached.

Unfortunately again, the work has been limited on account of the death of Dr. Charles O'H. Laughinghouse, who was an ardent supporter of cancer control work.

At the National Meeting of the American Society it was suggested that the Society approve a label or poster to be sold during cancer week, somewhat under the same regulations as the tuberculosis Christmas seal. We understand that this has been approved by the National Tuberculosis Association, as it in no way conflicts with the sale of their stamps. With the proper help and coöperation of the physicians and Women's Clubs of North Carolina, a considerable sum for cancer control work could be raised for future efforts. Your com-

mittee would like to get the approval of both the State Medical Society and the State Board of Health before this is undertaken.

On account of the deaths of Dr. Laughinghouse and Dr. John MacRae, we request the election of someone to take their place, and would suggest that the State Health officer be made permanent chairman of this committee.

Your State Chairman would also like to suggest that the Secretary be appointed in the same town in which the chairman resides, so as to enable him to have closer affiliations with the committee as a whole.

Respectfully submitted,

H. H. Bass, M.D., *Chairman.*

On motion, seconded by Dr. McBrayer, the report of Dr. Bass was accepted.

Dr. Bass: We realize how little we are prepared to treat cancer in this state. Other states are building hospitals and establishing facilities for this work. In North Carolina we are not prepared to take care of these cases. The treatment of cancer is heart-rending. What is the use of referring people to the mill when the mill is not prepared to grind? We organized and put in operation last night the North Carolina Radiological Society, and we should like to have a committee from the North Carolina hospitals to coöperate with us. The question of whether we should have a state hospital for treating cancer, or develop our clinics in these centers, is up to the committee to decide, and I really feel that we should have a report on it.

Dr. McBrayer moved that the recommendations of Dr. Bass, in his report, be referred to the directors of the state organization which has sponsored this work. This motion was seconded by Dr. Albert Anderson and was carried.

President Crowell: This completes the program of the Conjoint Session, unless there is some new business to be brought up. Not hearing of any, a motion to adjourn is now in order.

Dr. R. S. McGeachy, Greenville: Not a word has been said about two of the most faithful members of this Conjoint Session, who have died in the past twelve months. If we have come to the point of adjourning, I move that this Conjoint Session stand for a moment in silence and at the tap of the gavel, adjourn in honor of Dr. Charles O'Hagan Laughinghouse and Dr. Cyrus Thompson.

This motion was seconded and carried, and the Conjoint Session adjourned in honor of Dr. Thompson and Dr. Laughinghouse.

ADDRESS

BY

THURMAN D. KITCHIN, M.D., F.A.C.P.
President Wake Forest College

AT

Dedication Duke Medical School and Hospital

April 20, 1931

President Few, Ladies and Gentlemen: As the representative of the medical profession of North Carolina, I have the honor and happiness to bring to you on this occasion an expression of their greeting, good will, and Godspeed in this noble enterprise. Doctors are humanitarians, and as such we welcome an institution that has for its purpose the amelioration, cure, and prevention of the ills that affect humanity. As North Carolinians, we are proud to have in our midst such a school of medicine, so strategically located, so scientifically constructed, and so ably manned. We not only welcome its coming, but we pledge in advance our professional sympathy and coöperation to the end that the dream of its benefactor may be fulfilled and the hopes of its executives realized.

North Carolina has great pride and joy in remembering that one of her sons founded this institution. It is a new development and expression of our own vitality and intelligence. While the whole state and all its agencies of enlightenment rejoice in this fresh flowering of our life, the devotees of our science of medicine may be allowed some distinction in the general happiness of this occasion. For what these agencies have already accomplished makes most opportune this important addition to our resources of training and service, and supplies a promising soil for the highest development of this great ministry.

In a remote corner of the State a friend has built a cabin which is all his own. It is sentinelled by long-leaf pines and giant oaks, and when spring comes the dogwood and redbud make a garden spot of his retreat. For it *is* a retreat; there it is he goes when he is burdened by care, when, as an old negro servant expressed it, "his mind am overstocked." He can lie on the ground and feel the kind and understanding earth drawing his worries and grievances out of him. He goes there for inspiration also, for he can do his best planning and thinking there. And he comes away from his woodland haunt renewed in body and spirit, with a new vision of tomorrow's tasks.

You must forgive this seeming digression and the humble analogy of the cabin in the woods to Duke University's wonderful plant and broad acres. The truth is, I never come on this campus without being impressed by the wisdom and prophetic genius of those who selected this site for this great institution. They knew that this majestic wooded expanse would have its effect on those persons whose days

would be spent here—whether the man at the fountain-head of knowledge, the student, the patient in the hospital, or the stranger who makes a reverent pilgrimage to these gates. The founders of Duke University knew that in a place like this nerves would be soothed, abilities quickened, and on this campus, so recently borrowed from the unbroken forest, the mystery and magic of the woodland lingers—and will linger. Here, indeed, the spirit can ask and receive.

It may seem trite to say that the age of miracles is not past, but these words will rise to my lips when I remember that only a few years ago this place was a pine forest, and the beautiful stone which speaks so eloquently from these buildings was silent in a quarry. Yes, a miracle has been wrought—yesterday a forest, today a city set on a hill; yesterday a place of silence, unbroken save by the wind in the pines and the songs of the birds, today a Mecca of leaders in medical thought. Again I say, we have seen a miracle.

We have waited for the coming of the Duke medical school, but we have not waited in idleness. We find this day the culmination of a dream, the fitting and joyous climax of years of endeavor. We have sought to create an intellectual and scientific atmosphere in North Carolina in which such an institution as this may thrive and it is our pride that we are ready to fall into step and march forward with this great new enterprise. And if we all work together, is there any limit to what we can achieve?

During past generations we have been—so to speak—cracking the great mother of the sciences—medicine—into smithereens (like petroleum in order to learn more about its component parts) making specialty after specialty. This was absolutely necessary in order to search out the inner secrets to their last remote hiding place. But we hope and believe that in this place, unfettered by tradition, unhampered by lack of resources, and with provision made in the most ideal way for intellectual and physical contacts—all under one roof—we may witness a reassembling of these now-understood parts into the original organism, medicine. In other words, we hope that analysis may be followed by snythesis. Have we not seen in the field of medicine the disjointing of the mythical jointed snake, and is it not time now for us to view the spectacle of re-jointing?

There is another task before us—a task and a privilege. We hope that in this mild Southern climate the ice-bound quality, the rigidity of the science of medicine may thaw a little, so that the patient himself who is afflicted may be considered as well as his disease. In other words, that the patients admitted to this hospital will be regarded as personalities and not merely as cases. In this way the austerity of science could be blended with the sympathetic art of medicine, with no compromise of either. Surely the heart is just as necessary as the mind in the great business of healing. And if ever a neighborhood were suited in all its phases for this dual task, this seems to be the chosen one.

You will pardon me if I lay special stress here on the greetings from the two-year medical schools of the State. In speaking for these institutions (which give the pre-medical courses and only the first two

years of the medical course) allow me to say that we in no way consider that we are in competition with you. The roads we travel lie side by side, with many pleasant and mutually helpful convergences. All these roads lead ultimately to the same great and important destination—the well-being of humanity. Your road goes further than ours and climbs higher, but we are ready to cheer you on to your last mile. With such coöperation we feel that nothing but mutual good can result. We think the two-year school is sound theoretically and will continue indefinitely for two reasons:

1. The high standards required for medical students reacts on the academic work most favorably. The pre-medical students set a high standard for other students because they have to do so. Moreover, the presence of medical students who are serious, hard workers, of maturer age, and who have frequently already obtained academic degrees, does much to stimulate academic undergraduates and give dignity and tone to campus life.

2. It is commonly recognized that the drill work of the first two years of medicine can best be done where the group of students is small and the individuals brought into personal contact with the instructors. The fact that these instructors are selected for their capacity for this fundamental teaching makes for additional satisfactoriness to the extent that the great centers are relieved of this burden, they are the better able to occupy their most important field of clinical medicine and research.

Upon reading Lord Macauley's address upon his installation as Rector of Glasgow University in 1849, I am struck with the appropriateness to this occasion of one paragraph, which I shall read with necessary paraphrasing.

"There is no lack of alarmists, who will tell you that you are commencing under evil auspices. But from us—the medical profession of North Carolina—you must expect no such gloomy prognostications. We are too much used to them to be scared by them. Ever since we began to make observations on the state of our country we have seen nothing but growth, and we have been hearing of nothing but decay. The more we contemplate our noble institutions, the more convinced we are that they are sound at heart, that they have nothing of age but its dignity and that their strength is still the strength of youth. The hurricane that has recently overthrown so much that was great and that seemed durable has only proved their solidity. (Might not this refer to our own financial depression!) They still stand, august and immovable . . . . I see no reason to doubt that, by the blessing of God on a wise and temperate policy, on a policy of which the principle is to preserve what is good by reforming in time what is evil, our civil institutions may be preserved unimpaired to a late posterity, and that under the shade of our civil institutions, our academical institutions may long continue to flourish. I trust, therefore, that when a hundred years have run out, this university will still continue to deserve well of our country and of mankind. I trust that after another century we may find the spirit of the institution the same, that the one who stands here in my place may boast that the

hundred years have been glorious years, that he may be able to vindicate that boast by citing a long list of eminent men, great masters of experimental science, of ancient learning. He will, I hope, mention with high honor some of the young men who are now present; and he will, I also hope, be able to add that their talents and learning were not wasted on selfish or ignoble objects, but were employed to promote the physical and moral good of their species and to extend the empire of man over the material world."

May I, in closing, remind you that there was in Jerusalem in the days of the Great Physician a pool, meaning in the Hebrew "House of Mercy." It was a place of focalized pain, the five porches being crowded with the blind, the halt, and the withered. According to tradition an angel came at certain intervals and "troubled the waters," impregnating them with curative power. This, of course, may only refer to intermittent springs whose waters were supposed to have medicinal value. I mention this traditional "Fountain of Miracles" because it may be said to have its modern counterpart in the Duke University Medical School. But this does not depend on magic or supernatural cures—it goes deeper than that. A God-given science furnishes the means, and science is indeed the well-spring by which the diseased body may be cleansed and made whole. From this School hundreds of physicians will go forth to heal and prevent diseases that afflict the bodies and minds of men. These humane and philanthropic souls will help the Psalmist to fulfill his words:

"For with Thee is the fountain of life: in Thy light shall we see light."

FOURTH GENERAL SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

WEDNESDAY, APRIL 22, 8:00 P. M.

LECTURE ROOM "B"

The Fourth General Session was called to order by the President, Dr. J. G. Murphy, in Room "B," Washington Duke Hotel.

The President announced that a vacancy had occurred by limitation on the Board of Examiners for Nurses and Dr. C. H. Peete, of Warrenton, was nominated and unanimously elected.

President Murphy called for the report of the State Board of Medical Examiners, which was presented by Dr. John W. MacConnell, Secretary.

REPORT OF THE BOARD OF MEDICAL EXAMINERS STATE OF NORTH CAROLINA

FROM APRIL, 1930, TO APRIL, 1931

BY

DR. JOHN W. MACCONNELL, Secretary

The work of the Board has been harmonious, and, we hope, effective, during the year past. We suffered the loss of our senior member in the death of Dr. Walter W. Dawson of Grifton. No one could have been more interested in the work than was Dr. Dawson and his death was a sad blow to the remaining members of the Board. To fill the place left vacant, the Board elected Dr. Dave T. Tayloe, Jr., of Washington, N. C., who is a native of the section represented by Dr. Dawson, and he has proven to be a valuable addition to the Board of Examiners and we hope his choice has been favorable to the profession of the State.

The Board revoked the license of Dr. Garrett D. Gardner, of Asheville, for violation of the Harrison Act. Dr. Gardner had been sentenced to a term in Federal prison for this offense. Dr. Gardner carried this case to the Superior Court on appeal and we lost. The Board has appealed to the Supreme Court and the appeal is now pending. There are at present two other cases of similar offenses to come before the Board in June. Dr. Mike Roberson of Durham, who had been tried and found guilty of criminal abortion, and whose case is now on appeal before the Supreme Court, is to have a further hearing before the Board to show cause why his license to practice medicine in the State of North Carolina should not be repealed.

During the year past, eighty-five (85) candidates have been licensed by examination. Twenty-nine (29) have been licensed upon endorsement of their credentials from other states. The names of these one hundred and fourteen (114) new licentiates is herewith appended. Five applicants failed. Fifty-two (52) have taken the first two years of their medical examination.

The Board has assisted in the prosecution of other unlicensed practitioners and is at all times willing to coöperate with the local and State societies in upholding the Medical Practice Act.

JOHN W. MACCONNELL, M.D., *Secretary.*

THE FOLLOWING IS A LIST OF THOSE LICENSED BY ENDORSEMENT OF CREDENTIALS

SIR WALTER HOTEL, RALEIGH, N. C.

JUNE 16, 1930

No.	Name	Address	Preliminary Education	Medical College	Year	State
4199	Alyea, Edwin Pascal	Duke Hospital, Durham, N. C.	B.S. 1919 Princeton Univ.	Johns Hopkins	1923	End. Nat. B.
4200	Bancroft, John Walter	426 Lincoln St., Johnstown, Pa.	Collegiate	U. of Penn.	1914	Penn.
4201	Battle, Newsom Pittman	Park View Hosp., Rocky Mount, N. C.	Staunton Military Academy	U. of N. C. U. of Penn.	1926	Md.
4202	Brodie, Milledge Thompson	241 W. Main St., Johnson City, Tenn.	Johnson C. Smith University 1918	Meharry	1927	Tenn.
4203	Driskell, Simon Eugene	460 St. James Bldg., Jacksonville, Fla.	High School	U. of Ala. 1910 Memphis Hosp. Med.	1912	Fla.
4204	Fay, Scott Stuart	94 Brevard Road, Asheville, N. C.	B.S. 1905 Kansas State M.A. 1908 Univ. of Neb.	U. of Texas, U. of Mich., Chicago Eye, Ear, Nose, Throat	1921	Texas
4205	Hart, Oliver James	624 Nissen Bldg., Winston-Salem, N. C.	Col. of Charleston	Med. Col. S. C.	1925	S. C.
4206	Johnston, Christopher	Duke Hosp., Durham, N. C.	A.B. 1922 Johns Hopkins	Johns Hopkins	1926	Md.
4207	Knox, David Samuel	Pineville, N. C.	High School	U. of Ga.	1900	S. C.
4208	Myers, Milfert Weaver	341 W. Parke Ave., Niles, Ohio	1 Year Penn. State	U. of Md.	1915	Md.
4209	Reeves, Robert James	Duke Hosp., Durham, N. C.	A.B. Baylor Univ.	Baylor Univ.	1924	Texas
4210	Ruffin, Julian Meade	511 Fairfax Ave., Norfolk, Va.	A.B., M.A., M.D. U. of Va.	Univ. Va. U. of Chicago	1926	Nat. B.
4211	Stretcher, Robert Hatfield	Waynesville, N. C.	A.B. 1920 Miami Univ.	Rush Med. Col.	1926	Ill.
4212	Swann, Cecil Collins	101 Haywood St., Asheville, N. C.	Collegiate	Tulane	1926	Ala.
4213	Thomas, Charles Derwin	Sanatorium, N. C.	Indiana U. A.B. 1923	Indiana U.	1926	Ind.
4214	Thornton, Walter Forrest	Sanatorium, N. C.	Collegiate	Baylor U.	1927	Texas
4215	Westcott, William Emerson	Drawer 1100, Orlando, Fla.	Academic Pacific Union Col. 2 yrs.	Col. Med. Evangelists	1927	Fla.

THE FOLLOWING IS A LIST OF THOSE LICENSED BY EXAMINATION SIR WALTER HOTEL, RALEIGH, N. C. JULY 7, 1930

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4218	Allen, Mitchell Hurst	Horse Shoe, N. C.	2 Years, U. N. C.	Emory	1929	85 4/7
4219	Andrews, George Alvin	Mt. Gilead, N. C.	2 Years, Duke Univ.	Med. Col. Va.	1929	82 2/7
4220	Beavers, James Wallace	Apex, N. C.	B.S., 1928, Wake Forest	Univ. of Penn.	1930	90 5/7
4221	Berry, Phifer Erwin, Jr.	Drexel, N. C.	2 Years, Wake Forest	Univ. of Md.	1930	87 5/7
4240	Bonner, Merle Dumont	Aurora, N. C.	3 Years, U. N. C.	Univ. of Md.	1930	87 3/7
4222	Boseman, Edgar Norman	Enfield, N. C.	A.B., 1926, U. N. C.	Univ. of Penn.	1930	87
4223	Brickhouse, Albert Thurman	Creswell, N. C.	B.S., 1928, Wake Forest	Tulane	1930	86 5/7
4224	Brock, Macon Foscue	Trenton, N. C.	B.A., 1925, Duke Univ.	Med. Col. Va.	1930	84
4225	Cathell, Edwin Jennings	Grady Hospital, Atlanta, Ga.	Emory Univ.	Emory Univ.	1930	89 5/7
4226	Chance, Lester Thomas	Gibson, N. C.	2 Years, U. N. C.	Univ. of Md.	1930	88 1/7
4227	Clark, William Freeman (C)	St. Agnes Hosp. Raleigh, N. C.	A.B., 1924, Talladega Col.	Meharry	1929	85 2/7
4229	Cook, John M., Jr.	67 Georgia Ave., Concord, N. C.	A.B., 1926, Davidson Col.	Univ. of Penn.	1930	91 6/7
4230	Cook, William Eugene	Route No. 3, Fayetteville, N. C.	B.S., 1928, U. N. C.	Washington U. St. Louis, Mo.	1930	89 1/7
4231	Cozart, Benjamin Franklin	Stem, N. C.	2 Years, Duke Univ.	Med. Col. Va.	1929	86 3/7
4232	Crowell, Lester Avant	Lincolnton, N. C.	A.B., U. N. C.	Tulane	1930	94
4233	Crumpler, James Fulton	Clinton, N. C.	B.S., 1928, U. N. C.	Univ. and Bellevue Hosp. Med. Col.	1930	85 2/7
4234	Davis, Elbert Vernon	Elizabeth City, N. C.	B.S., 1926, Wake Forest	Jefferson	1930	85 2/7
4235	Bosher, William Sterling	Southport, N. C.	Ph.G., Med. Col. Va., 1924	Med. Col. Va.	1930	85 1/7
4236	Duckett, Virgil Duckett	Leister, N. C.	B.A. 1925, B. S. 1928 Wake Forest	Univ. of Penn.	1930	89 4/7
4237	Dudley, Gaston Edward	69 Bern St., New Bern, N. C.	A.B., 1923, Biddle Univ.	Meharry	1928	80 2/7

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4238	Duffy, Charles	117 Pollock St., New Bern, N. C.	3 Years Washington & Lee	Jefferson	1930	89 5/7
4239	Dula, Arthur G.	Lenoir, N. C.	A.B. 1907 Lincoln Univ.	Leonard Med. School	1912	80
4241	Early, Julius Cherry, Jr.	Aulander, N. C.	Wake Forest	Med. Col. Va.	1930	86
4242	Ellis, Van Mashburn	1807 Angier Ave., Durham, N. C.	1 ½ Years, Wake Forest	Med. Col. Va.	1930	84 3/7
4243	Falls, Fred	Lattimore, N. C.	2 Years, Wake Forest	Tulane	1930	88 5/7
4244	Fleming, Fred Henry	Box 42, Mocksville, N. C.	Ph.G., 1924, U. N. C.	Tulane	1930	87 5/7
4245	Forrest, Daniel Efland, Jr.	Efland, N. C.	B.S., 1928, U. N. C.	Univ. Md.	1930	91 2/7
4246	Franklin, Ernest Washington	2303 Fairview Rd., Raleigh, N. C.	B.S., 1928, U. N. C.	Univ. Penn.	1930	89 4/7
4247	Gregg, Theodore Kynetts (C)	St. Agnes Hosp., Raleigh, N. C.	A.B., 1925, Claflin Col.	Meharry	1929	85 2/7
4248	Hamer, William Alexander	Rockingham, N. C.	B.S., 1928, Wake Forest	Univ. Md.	1930	82 5/7
4249	Hansen-Pruss, Oscar C. E.	Hope Valley, Durham, N. C.	B.A. 1919 Univ. St. Marus, Lima, Peru	Johns Hopkins	1924	91 3/7
4250	Harmon, Walter H.	Buie's Creek, N. C.	B.S., 1928, U. N. C.	Jefferson	1930	84
4251	Harrell, Leon Jackson	Goldsboro, N. C.	B.S. Med. 1928, Wake Forest	Univ. of Md.	1930	87 3/7
4252	Hendrix, James Paisley	723 Church St., Greensboro, N. C.	B.S. 1925, M.A. 1926 Davidson Col.	Univ. Penn.	1930	85 4/7
4253	Herring, Edward Humphrey	Zebulon, N. C.	B.S. Med. 1928, Wake Forest	Univ. Penn.	1930	86 1/7
4228	Highsmith, William Cochran	Fayetteville, N. C.	B.A., 1926, U. N. C.	Univ. Cincinnati	1930	86 1/7
4254	Hill, Abel LeCompte	Burlington, N. C.	A.B., 1926, Drake Univ.	Univ. Penn.	1930	91 2/7
4255	Hooks, William Borden	205 W. Mulberry St., Goldsboro, N. C.	A.B., 1927, U. N. C.	Univ. Penn.	1930	87 5/7
4256	Jackson, Marshall Voden	Chapel Hill, N. C.	2 1-3 Years, U. N. C.	Univ. Md.	1930	88 5/7
4257	Johnson, William Reid	363 State St., W. Asheville, N. C.		Syracuse Univ.	1930	82 4/7
4258	Jones, Dean Cicero	204 N. Tryon St., Charlotte, N. C.	3 Years Emory and Henry Col.	Univ. Penn.	1927	89 4/7

4259	Kemp, Malcolm Drake	Box 176, Elizabethtown, N. C.	2 Years, U. N. C.	Washington Univ.	1930	89 4/7
4260	Lawrence, Margaret Whitaker	Ayden, N. C.	A.B., N. C. C. W. M.A., Columbia U.	Columbia U.	1930	84 5/7
4261	LeBauer, Maurice L.	309 McIver St., Greensboro, N. C.	Univ. Va. 1 Yr.	Univ. Va.	1929	88 2/7
4262	LeBauer, Sidney Ferring	309 McIver St., Greensboro, N. C.	Univ. Va. 1 Yr.	Univ. Va.	1929	86 6/7
4263	Lewis, Clifford Whitefield	Beaufort, N. C.	A.B., U. N. C.	Med. Col. Va.	1930	84 4/7
4264	Liles, Lonnie Carl	Wendell, N. C.	B.S. 1928, U. N. C.	Med. Col. Va.	1930	86 6/7
4265	Liverman, James Stanley	Woodland, N. C.	2 Years, Wake Forest	Med. Col. Va.	1930	87 1/7
4267	Lott, William Clifton	Hendersonville, N. C.	A.B., 1927, U. of Col.	Univ. Colorado	1929	86
4268	McBee, Paul Thomas	Bakersville, N. C.	B.S., 1928, Wake Forest	Med. Col. Va.	1930	82 6/7
4269	McCracken, Marvin Howell	Fairview, N. C.	2 Years, Wake Forest	U. of Louisville	1930	85 6/7
4270	McElroy, James Lawrence	Marshall, N. C.	B.S., 1928, U. N. C.	Washington U.	1930	86 3/7
4271	McLeod, Neill Henry, Jr.	918 Vance St., Raleigh, N. C.	A.B., 1926, U. N. C.	Univ. Penn.	1930	90 5/7
4272	Moehlmann, Ernst Otto	Conover, N. C.	B.S. 1922, M.S. 1923 Univ. N. C.	Univ. Penn.	1930	90 5/7
4273	Nichols, Rhodes Edward	Route No. 8, Durham, N. C.	B.S., 1928, U. N. C.	Univ. Penn.	1930	92 4/7
4274	Oliver, Robert Deleon	Princeton, N. C.	B.S., 1928, U. N. C.	Univ. Md.	1930	82
4275	Ormond, Allison Lee	Durham, N. C.	A.B., Duke U.	Jefferson	1930	88 6/7
4276	Osborne, Joseph Evans	Shelby, N. C.	3 Years, Wake Forest	Med. Col. Va.	1930	85 1/7
4277	Owen, Duncan Shaw	Fayetteville, N. C.	2 Years, Univ. N. C.	U. of Md.	1930	89 5/7
4278	Owens, Zack Doxey	Elizabeth City, N. C.	B.S., 1928, U. N. C.	Univ. Md.	1930	89 6/7
4279	Padgett, Charles K.	Forest City, N. C.	B.S., Wake Forest	Jefferson	1930	91 3/7
4280	Patterson, Rex Delmere	Liberty, N. C.	4 Years, Wake Forest	Tulane	1930	85 1/7
4281	Peede, Alvin Wortham	Neuse, N. C.	B.S., 1928, Wake Forest	Jefferson	1930	81 1/7
4282	Phillips, Ernest Nicholas	Dalton, N. C.	B.A., 1919, Wake Forest	Med. Col. Va.	1930	82 5/7
4283	Pinkerton, Frank Coulson	Moore County Hosp., Pinehurst, N. C.	2 Years, U. of Va.	Univ. Va.	1928	85 5/7

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4284	Reeves, Julius Norman	Parkersburg, N. C.	B.S., 1928, Wake Forest	Jefferson	1930	91 1/7
4285	Roberson, Robert Stuart	Glenwood Park Sanitorium, Greensboro, N. C.	B.A., 1927, Wake Forest	Med. Col. Va.	1930	82 3/7
4286	Robinson, Charles Wilson	R. F. D. No. 7, Charlotte, N. C.	A.B., 1922, Davidson	Univ. Penn.	1930	91 6/7
4287	Rourk, Malcolm Henderson	Shallotte, N. C.	S.B., 1926, U. N. C.	U. of Minn.	1928	89 5/7
4288	Shaw, Lloyd Roosevelt	Harmony, N. C.	B.S., 1928, Wake Forest	Med. Col. Va.	1930	83 2/7
4289	Simons, Claude Ernest	Colerain, N. C.	A.B., 1926, U. N. C.	Med. Col. Va.	1930	81 6/7
4290	Slaughter, Frank Gill	R. F. D. No. 1, Washington, D. C.	A.B., 1926, Duke Univ.	Johns Hopkins	1930	91 2/7
4291	Sorrell, Furman Yates	311 Alston Ave., Durham, N. C.	B.S., 1926, Wake Forest	Jefferson	1930	81 5/7
4292	Stein, Irvin	Fayetteville, N. C.	A.B., 1926, U. N. C.	Jefferson	1930	85 5/7
4293	Strickland, Horace Gilmore	Nashville, N. C.	B.S., 1928, U. N. C.	Univ. Md.	1930	84 5/7
4294	Thompson, Alton Bernard	Box 69, N. Charlotte, N. C.		Syracuse U.	1930	86 2/7
4295	Tucker, Earl Van	Grifton, N. C.	B.S., 1928, U. N. C.	Med. Col. Va.	1930	83 5/7
4296	Tucker, Heber Olney	Whitakers, N. C.	A.B., 1925, Duke Univ.	Johns Hopkins	1929	85 1/7
4297	Walton, George Britain	729 Pearson St., Greensboro, N. C.	B.S., 1924, Univ. Ga.	Tulane	1930	92 3/7
4298	Watson, Hugh Alfred	Boone, N. C.	B.S., 1928, U. N. C.	Med. Col. Va.	1930	85 3/7
4299	Wheless, William Perry	Spring Hope, N. C.	A.B., 1928, U. N. C.	Rush Med. Col.	1930	87 6/7
4300	White, Clarence Hunt	Townsville, N. C.	A.B., 1926, U. N. C.	Tulane	1930	90 5/7
4301	Wolfe, Nathan Carl	Mt. Olive, N. C.	B.S., 1927, U. N. C.	Vanderbilt Med. Col.	1929	86 2/7
4302	Wrenn, Simeon Mayo	Garner, N. C.	Ph.G., 1924, U. N. C.	Med. Col. S. C.	1930	82 1/2
4303	Wright, Herman Wilder	Shiloh, N. C.	B.S., 1928, Wake Forest	Jefferson	1930	88 4/7
4304	Laube, G. Richard	Rex Hospital, Raleigh, N. C.	B.S., Univ. Ill.	Univ. Ill		88 3/7

THE FOLLOWING WERE LICENSED BY ENDORSEMENT OF CREDENTIALS SIR WALTER HOTEL, RALEIGH, N. C. DECEMBER 1, 1930

No.	Name	Address	Preliminary Education	Medical College	Year	End.
4305	Bowen, Sarah	Laurel Hosp., White Rock, N. C.	Shanghai Amer. Sch.	Univ. Minn.	1927	Minn.
4306	Covington, John Malloy Clayton	Navy Yd. Dispen., Portsmouth, Va.	A.B., Oberlin Col. A.B., 1925, Davidson Col.	Univ. Va.	1929	U. S. Navy
4307	Deyton, John Wesley	Matinsville, Ind.	A.B., 1926, Univ. N. C.	Rush Med. Col.	1928	Nat. Board
4308	Harden, Boyd	Bnrlington, N. C.	A.B., 1921, Univ. N. C.	Dartmouth	1928	Nat. Board
4309	Holzman, Mark Benjamin	Wilmington, Del.	High School	Univ. Penn. Medico Chirurgical Col., Philadelphia	1904	Penn.
4310	Howell, Ezekiel	Roan Mt., Tenn.	High School	Lincoln Mem. Univ. Univ. Tenn.	1914	Tenn.
4311	Johnson, Julins Doar	Aiken, S. C.	B.S. 1922, U. Ga. M.D. 1924, U. Ga.	Univ. Ga. Med. Department	1924	Ga.
4312	Justice, William Shipp	Boston City Hosp., Boston, Mass.	A.B., 1920, Univ. N. C.	Howard Med. Col.	1926	Nat. Board
4313	Snodgrass, Milo Raymond	627 N. Galloway St., Xenia, Ohio	Univ. Mich. 1928	Univ. Mich. Med. Col.	1928	Mich.
4314	Wheeldon, Thomas Foster	318 W. Franklin, Richmond, Va.	A.B. and M.A. Univ. Missouri	Univ. Missouri Harvard Med. Sch.	1918	Mass.
4315	Wyatt, Tyree Cheatham	161 W. 61st St., New York, N. Y.	A.B. Med. 1920 Wake Forest	Syracuse Univ.	1922	Nat. Board

President Murphy: I feel very much gratified that so many doctors have felt themselves justified in coming to this meeting, in spite of the president you have had this year. We feel very proud that this is the largest meeting in the history of the Society, though of course we realize that the dedication of the Medical School of Duke University and the central location of this city added to the chance of making it the large meeting it is.

I wish to congratulate the North Carolina Dental Society upon its growing membership, as evidenced by the fact that there is no city in North Carolina with sufficient hotel facilities for accommodating both societies at the same time.

The report of the House of Delegates submitting roster of officers and committees elected by the House of Delegates on motion of the Nominating Committee was presented (see Second Session House of Delegates) and unanimously approved.

The President asked Dr. C. F. Strosnider and Dr. V. M. Hicks to present Dr. M. L. Stevens, President-elect. President Murphy duly installed Dr. M. L. Stevens into the office of President for the ensuing year and President Stevens assumed the chair.

President Stevens introduced Dr. John B. Wright of Raleigh, President-elect for the coming year.

President Stevens presented a jewel to the retiring President, Dr. J. G. Murphy.

No further business appearing, on motion the Medical Society of the State of North Carolina adjourned *sine die*.

SCIENTIFIC SECTIONS

SECTION ON PRACTICE OF MEDICINE

SECTION ON SURGERY

SECTION ON PEDIATRICS

SECTION ON GYNECOLOGY AND OBSTETRICS

SECTION ON EYE, EAR, NOSE AND THROAT

SECTION ON PUBLIC HEALTH AND EDUCATION

SECTION ON PRACTICE OF MEDICINE

Dr. Wm. B. Dewar, Raleigh, *Chairman*

The Section on Practice of Medicine met in the Pathologic Conference Room, Duke University Medical School, Tuesday, April 21, 1931, and was called to order at 2:10 P. M., by the chairman, Dr. Wm. B. Dewar, Raleigh.

The first paper is by Dr. T. Preston White, Charlotte.

ARTHRITIS

T. Preston White, M.D., Charlotte

Arthritis is, as stated by the American Committee for the Control of Arthritis, a generalized disease with joint manifestations. In this paper I will not consider specific forms of arthritis, such as the tuberculous or traumatic types, but that great group called by most of us "rheumatism." For clinical purposes it may be subdivided into: first, atrophic or proliferative arthritis, called by the English "rheumatoid arthritis"; secondly, hypertrophic or degenerative, what the English call "osteo-arthritis."

The pathological changes in the atrophic type are proliferation of the synovial membrane with pannus formation, proliferation of the connective tissue and of the endosteum of the epiphyseal marrow with final atrophy of the cartilage and of the joint as a whole. This may go so far as to lead to a complete fusion of one bone with another with a continuous marrow cavity for both, thus causing complete ankylosis. The end clinical picture is either a fibrous or bony ankylosis.

In the second or hypertrophic type, a degeneration of the hyaline cartilege of the articular surface takes place. This allows bone to come in contact with bone, with resulting eburnation of the articular surfaces. True bony ankylosis never occurs in this type. Heberden's nodes seen in distal phalangeal joints of hands are typical of this type and these nodes represent an overgrowth of cartilege that is transformed into bone, usually lying within the joint capsule.

Discussion of the symptomatology has many difficulties, and the disease in the early stages may be difficult. to differentiate. However, atrophic arthritis usually comes on in individuals under forty years of age, and often when in apparent good health. It is often, may be, infectious in origin. At first there may be only a slight stiffness in one joint or soreness of the muscle. Lateral pressure on the joint may reveal tenderness for the first time. Later, there occurs a definite swelling of one or more joints associated with heat and pain. Often, even large effusions may occur. The symptoms may be related to inf ction or childbirth. During a pregnancy the patient may be symptom-free. After pregnancy the severity of the disease is greatly increased. There may be a slight fever with a slight leucocytosis. The mid-finger joints are frequently involved and often take a fusiform shape. Fatigue, even after an apparently good night's rest, may

be one of the first complaints of the patient. There may have been previous attacks of lumbago in the past medical history. A slight anaemia may be associated. If the disease is not arrested, varying degrees of muscle atrophy result around joints, partly caused by disuse and partly by the disease itself. Lastly, many types of deformity occur, some of which may result in complete bony ankylosis.

The hypertrophic type presents a different picture, although there may be some overlapping of symptoms and the two diseases may be seen in the same individual. Usually it is slow in onset and occurs after forty years of age. Rarely does infection play a part. The first evidence may be swelling of the distal joints of the fingers, frequently painless. These enlargements have been for years called Heberden's nodes. The patient usually complains of much stiffness after sitting down. There is usually pain on motion and a tenderness with lateral pressure on joints. The knees, being weight-bearing joints, are frequently involved first. Effusion is less in this type of the disease. X-ray findings are of great help in diagnosis, showing spurs or pointed projections from the bone. Although varying deformities may take place, no true bony ankylosis occurs in this type.

Arthritis of the spine, better known as spondylitis, may be divided into three groups. First, spondylitis ossificans ligamentosa. This is the atrophic type of the disease. Ossification of anterior common ligament takes place, and when associated with ankylosis of the hip and shoulder joint is called spondylitis rhizo-melique. Second, spondylitis osteo arthritica. This is the hypertrophic type of the disease. Third, spondylitis muscularis, first described by Von Bechterew. In this type a paretic condition of the muscles of the trunk, neck and extremities results. There is also diminished sensibility and twitching and contraction of muscles due to motor nerve irritation.

Many factors play an important role in arthritis. Chief among these are age, sex, fatigue (physical and mental), poor posture, foci of infection, allergy, gastro-intestinal affections including dietary errors, and exposure.

In the treatment of arthritis, we stand today where we stood twenty-five or thirty years ago as to tuberculosis. When we tell a person with tuberculosis how long it will take him to get well, we speak in terms of months and years. We must consider arthritis in terms of weeks or months, according to the severity of the condition. Most arthritics are much below par, mentally and physically. Therefore, rest is of first importance. In the acute stages rest in bed must be insisted upon with only enough exercise or movement, especially in the atrophic cases, to prevent ankylosis. Often it is necessary only to allow bathroom privileges. Later on, a certain amount of rest in each day, preferably after lunch, is of great importance. In dealing with single joints, they too must be given rest, and here it is often necessary to have the help of an orthopedic surgeon. In using splints and casts, it must always be remembered to allow atrophic joints some motion.

Following a complete history and physical examination, the patient must be thoroughly combed for foci of infection and those found

removed. Teeth, tonsils, sinuses, gall bladder and the genito-urinary tract must be carefully ruled out. The proper time for the removal of any focus must be considered. Complete recovery may be delayed by the removal of foci when the general condition of the patient is at such a low ebb that no surgical procedure should be attempted. General tonic measures and rest should prepare the patient for operation as for any other surgical procedure.

The next factor in treatment is correction of gastro-intestinal errors. According to Pemberton, it seems to be certain that arthritics stand starches poorly. It is, therefore, advisable to lower the carbohydrate intake, but care must be taken not to lower the total caloric value rapidly. With some patients it is necessary to actually make them gain weight, at the same time keeping them on a twenty-five to thirty percent carbohydrate diet. I usually put them on a high fruit and vegetable diet with some meat once a day. I have had to control the intake of citrus fruits with certain patients, for without question they were getting symptoms from too great a quantity of oranges and grapefruit. Nearly all of these individuals need some mild laxative. The plain oils with cascara often prove of much value. Based on X-ray examination, when both a motor meal and a colon enema picture are made, we may determine the size, shape, position, and whether there is any reduplication of the bowel. Those intestinal tracts which show a marked hypomotility and are greatly enlarged, may be benefited by the use of colonic irrigations. The latter must be given with great care. Tap water is best to use. Only six or eight ounces of fluid should be allowed to run in at one time and then returned. When the first treatment is given, if the patient suffers much abdominal pain or discomfort, the treatment should be stopped. Usually colonic irrigations are kept up over a period of two or three months, being given two or three times a week. Then the condition of the patient decides whether they should be carried on. However, it should be understood that colonic irrigations are only necessary in a small percentage of patients.

Vaccine therapy is used in that group that proves to be of an infectious origin. A minimum dose of 10,000,000 cocci should be given every fourth or fifth day and kept up for a period of several months. Non-specific protein therapy is used in order to get a temperature reaction in the acute or subacute types of the disease in individuals who seem to be at a standstill. If no result is gotten after injecting 75,000,000 organisms on three or four different occasions at five-day intervals, it is of no use to carry on. Non-specific protein therapy is contra-indicated in patients with fever.

Physio-therapy is one of our most important forms of treatment and I cannot too strongly stress its importance. It may be divided into the following groups: heat, massage, rest, exercise and postural exercise. I prefer the dry heat of the incandescent lamp. A joint is generally baked for about ten minutes, with a light blanket between the heat and the joint, and only until the skin begins to break out in fine perspiration. Massage must be given by an expert, because if not properly given much damage can be done the patient. Effleurage,

or stroking, is the most important manipulation. The joint itself should never receive massage. The results from the two above measures are a definite increase in local and peripheral circulation, and a toning up of the muscles that have become atrophied from disuse and from the disease. The patient also may help himself with exercise but the danger here lies in the fact that patients will try to overdo it, bringing on exhaustion, which naturally slows up the period of recovery. I am constantly reminding my patients that no matter what they are doing, they should never allow themselves to reach the point of exhaustion.

Last, but of equal importance with the others, comes the work of the orthopedic surgeon who must look after the body mechanics of the individual. It is he who has been forced to look after badly crippled individuals because the medical man has failed to arrest the disease in its beginning, and it is he who must correct posture and look after the partially or totally ankylosed joints and contractures. Every medical man can be helped by an orthopedic surgeon when the arthritic patient has reached the stage of chronicity.

To these means of treatment may be added general tonic measures, plus the use of salicylates for the control of pain. I have found that sodium cacodylate, in half-grain doses, taken three times a day, helps the appetite, and use aspirin as much as 50 or 60 grains a day for control of pain in the acute cases. Dessicated thyroid gland is also of value, especially in the hypertrophic type of disease, because of the stimulation to the circulation. The dosage must be very small, from 1/16 to ½ grain per day, because if given in larger doses a harmful effect will be had.

In closing, I feel that there is no chronic disease for which so much can be done, and I would like again to stress the importance of thorough study, both from the standpoint of history and physical examination, and that only with the combined use of the methods of treatment outlined are we going to get the result so much desired by our patients and ourselves. Treatment from one standpoint, as removal of foci alone, vaccine alone, physio-therapy alone, diet or rest alone, is not likely to overcome the disease or to cure the patient, but a combined attack with all these measures directed against the disease and toward augmenting the patient's resistance, will produce amazingly successful results.

DISCUSSION

Dr. W. R. Stanford, Durham: In the first place, I want to thank Dr. White for bringing this subject to our attention. Arthritis, and especially chronic arthritis, is one of the most unsatisfactory diseases that a doctor is called upon to treat. We doctors all know that it is this type of patient who travels from office to office seeking something which he seldom gets. Most conscientious practitioners of medicine hate to see this type of patient come into their offices. In the acute cases, of course, we can feel a little more hopeful.

Dr. White has very ably detailed to you the methods of study in these cases and very correctly advised, among other things, looking

for foci of infection. I feel, as he does, that these foci should be removed; and I also feel, as he does, that this is not the whole story. There are certain metabolic changes about these joints which certainly, at times, play a part. In addition to this, any primary focus is able to set up secondary foci.

I feel that Dr. White is correct in comparing these patients with tuberculous patients, because the patients who have the best physical equipment are those who put up the best fight against this disease. I have often thought of the fact that the ordinary individual puts up a very good fight against disease up to the age of forty; after that, if he has any marked focus of infection, it usually manifests itself. So I think Dr. White's idea of building up his patient and using a combination of treatments for the ultimate cure is the rational procedure.

Dr. J. H. McNeill, North Wilkesboro: There are two questions I should like to ask Dr. White. One is as to the status of the much advertised diathermy, ultraviolet and infrared and things like that in the treatment of these arthritic conditions; the other is about the use of the intravenous salisylate solution, which has also been widely recommended. I hope that in closing he will give us some information on these points.

Dr. T. Preston White, Charlotte, closing the discussion: About the question of clearing up secondary foci of infection, I have found that in treating a patient by the general measures outlined the foci are often taken care of. In the hypertrophic type of the disease, these general measures will cause a suspicious throat or tonsils to return to a normal state.

About the intravenous salicylate medication, the only value I can see from that is the control of pain and I feel that you can get the same result by large enough doses of aspirin, preferably given after meals, by mouth. Diathermy and ultraviolet light have a part in the treatment. I prefer to use plain heat because I feel you get as good results from that as you do from any other form, and it is not nearly so expensive to the doctor or to the patient.

Chairman Dewar: Gentlemen, I have the pleasure and honor at this time of introducing our invited guest, a gentleman who is in charge of the gastro-enterological clinic at Johns Hopkins and who is one of the leading gastro-enterologists in the East. This gentleman needs no introduction to this body of men. I present Dr. Thomas R. Brown, of Baltimore. (Applause.)

THE VARIOUS FORMS OF COLITIS, THEIR ETIOLOGY, DIAGNOSIS, AND TREATMENT

Thomas R. Brown, M.D.

Johns Hopkins University Medical School
Baltimore, Md.

Seven or eight years ago we came to the conclusion at our clinic and at Hopkins that the intestinal tract was a sadly neglected subject,

that the stomach was studied almost ad nauseam, but the intestine was sadly neglected. So we decided to make studies, and we enlisted the services of the School of Public Health, in our study of protozoology, and enlisted the aid of the Department of Bacteriology. We did the work in conjunction with the chemical laboratory, in certain chemical problems, and had a working agreement with the Surgical Department to get specimens from various levels of the intestinal tract. We studied the intestinal flora. One of my associates studied the subject three years as a full-time subject. I think we have added some things to the subject and that some of them might be interesting to present to you today.

Colitis is very difficult to define. In its minor form it is regarded as mechanistic. There is always a great difference of opinion in the milder forms. By and large, we diagnose most of these cases as falling into three main groups: (1) Catarrhal; (2) Mucous (that is possibly a sub-group of catarrhal, or possibly not); (3) Ulcerative.

First, in studying acute gastritides, the only interest to us is the fact that in many of these cases the process is one of gastro-enterocolitis. It is interesting because the colon is more susceptible, the material remains in it longer, and a certain group of our cases of chronic gastro-enteritis have their source here. It calls to our attention two very striking things. The first is the very marked difference in individual susceptibility to trauma of the colon. Second, and equally important, is the fact that this differentiation is applied not only to the whole colon but to different parts of the colon, because colitis has a peculiar tendency, in certain of its manifestations, to localize itself in certain parts of the colon rather than the colon as a whole.

Now, let us run over very briefly the various forms of chronic catarrhal colitis, which have been extremely interesting to us. In the first place, there is that very large group due to drugs, the most important class of drugs, in this connection, being purgatives. I know nothing that is more grossly abused than the use of purgatives. It is a very remarkable thing, in these chronic colitides, how many owe their origin to the abuse of purgatives. In this connection, I shall make a plea for the limitation of these forms of drugs. It is frequently surprising how many of these cases can be absolutely corrected and cured by simple dietetic and hygienic means. First of all, you have to prove the existence of obstructions and other conditions which have to be treated by surgical means. Most of them have no such history. School girls have bad habits; travelers have bad habits. The great majority of these can be brought back to normal by very simple means: exercise, taking a little salt solution in the morning (that seems to start up the peristaltic wave in the stomach, which extends to the intestine), fruit juice, the taking of plenty of water, insistence that meat and other astringents be reduced to a minimum, the use of green foods, of roughage. If we gain the confidence of our patients and get rid of the fear of auto-intoxication and get them away from dependence on mechanic and other measures, it is remarkable how much we can do. The patient has to have faith in his doctor. By

these measures you can inaugurate a perfectly normal habit in patients who have used drugs for years and years.

A very interesting thing, which has interested me a great deal in the last few years, is where constipation represents the only symptom of a mild hypothyroidism. These cases practically all fall into a group of women of middle age, forty to fifty, around the menopause. The first case I became interested in was one sent to Dr. Finney, with operation suggested for intractable constipation. She had been everywhere for treatment. She had put on weight and was a little sluggish, physically and mentally. In that case thyroid extract brought about complete relief. That was fifteen or twenty years ago, and the patient has had to take thyroid extract ever since. That got me interested, and in our office we have tried to check up on this type of case. We have had 106 cases, and 82 of those have given a basal metabolic reading of less than minus ten, which is very low. Some have given a basal metabolic reading of minus twenty or below. It is a very interesting group. The therapy has to be combined with recognition of the fact that mild hyperthyroidism is one of the factors. All fall in the group of "fair, fat, and in the forties." If you do a basal metabolism test, you will be struck by the fact that a considerable number of them have low basal metabolic readings and will be relieved by thyroid extract.

The group of cases due to food is very interesting. ——— has always maintained that these are true colitides due to the large amount of meat taken so universally nowadays. While I can not subscribe to that, it is well worth remembering to try the effect of cutting down the amount of meat and administering lactic-acid milk or a vegetarian diet. It is a small group and ought to be recognized.

A very interesting group is the group due to intestinal parasites. We got very much interested in the question of intestinal parasites because, you may remember, a few years ago ——— and others living in Chicago found they were having from ten to fifteen per cent of ameba histolytica in their cases. Every morning all of our routine cases were studied. We had 300 cases the first year and 222 the second year. All specimens were from defecated specimens or from specimens obtained with the sigmoidoscope, and all were examined immediately. Practically none showed the Ameba histolytica. We found a great many other things. We found between 10 and 13 per cent, taking our two series, in which we found various organisms. We found all sorts of organisms of the protozoon type, but none pathogenic in the usual sense of the word. But we were tremendously impressed that when we examined the specimens immediately on a warm stage, specimens from the sigmoidoscope, our percentage rose tremendously. In other words, the sigmoidoscope increases the chances of finding them 360 per cent. Since I have told this to ———, head of the School of Tropical Medicine in London, he has installed a sigmoidoscopic room. Then I think it is pretty well agreed to by Stiles in his studies in Washington. The interesting point, and the point I want to make, is that sigmoidoscopy is not a surgical procedure but a

simple diagnostic medical procedure adding tremendously to our chances of finding the organism.

Now, most of those cases are perfectly harmless. A few cases (we do not know why), a few cases of Giardia and Trichomonas seem to be ——————. In our experience, the Giardia are very hard to get rid of.

A very interesting group of colitides is that known as the gastrogenous group; that is, where the cause is gastric and the symptoms and signs entirely intestinal. It is the diarrhea of old people and the diarrhea that develops after sudden shock or nervous strain, without any evidence of hyperthyroidism. If you take test meals, you will find these cases are true achylias; and if you administer hydrochloric acid you have the cure entirely in your hands. It is a peculiarity of mechanism affecting the peristaltic movement. It is a very peculiar group.

More interesting still is the pancreatogenous type—that is, those due to deficiency or absence of efficiency of the pancreatic ferments. A few years ago we tried to establish a normal for pancreatic ferment. We found that there was an absence of pancreatic ferment in certain conditions, a diminution in certain other conditions in which colitis was a characteristic feature. There are two main groups. The first we met in old people, where the pancreatic ferments, estimated quantitatively, were from ten to twenty per cent of the normal. If you have old people who do not do well, who have flatulence, have diarrhea, who do not put on weight, try administering pancreatic extract.

There is a certain proportion of cases, after cholecystectomy, in which the pancreatic function is temporarily inhibited. Here again the administration of pancreatic extract is indicated.

There is another group in which there are great, big yellow ——— stools.

We found in tropical sprue a large group of cases had absence of pancreatic ferment. Of course, that is not the cause of sprue. We do not believe that moniliasis is the cause of sprue; we do not believe that has been determined. Now, that is interesting in your Southland, because you have a certain number of cases of sprue, though not the classical picture you get from Ceylon. But bear this in mind. It is interesting, because we meet cases which we have to call typical or atypical mild sprue, mostly in the Southland but sometimes up north, which seem to be due to ——————— and can be relieved by the use of bananas, the use of strawberries, the use of lactic-acid milk in the diet. The late Dr. Wood, of Wilmington, of course was quite an authority on that.

It is very interesting to call attention to the fact that the old history of sprue, which was first described in Ceylon by ——————, who was really the father of tropical medicine, advised the use of the eyes of crustaceans, which have the calcium, and the use of liver, which is the treatment for pernicious anemia.

Another very interesting group is the postoperative group of colitides. It is a very difficult thing for the surgeon to realize that functional disturbances do not end with the removal of the cause.

Colon spasm remains; hyperacidity remains; irritability remains. There is a very considerable group, therefore, in which the patients' comfort and recovery depend upon the recognition of the fact that functional disturbances do not end with the removal of the cause. Here you have a jejunum, for instance, which is used to the dumping into it of soft food; then suddenly it has dumped into it irritating food. It must be recognized that this case must be educated by the use of liquid food for a long time. This is so much so that Maurier, of Paris, said that colitis always followed gastroenterostomy. But it can be obviated in the vast majority of cases by proper post-operative care and dietary care.

Then there is another group of cases in which the colitis is more or less psychogenic in origin. These cases are easy to diagnose; spastic colon, easily felt. If you can not palpate it, try a method I have used —palpate in a hot bath, when the abdominal wall is relaxed. You have to consider both the psychogenic side and the ———— side. I disagree with the method of using rough diet. I am quite sure for the American gut rough food is contraindicated. I do not recommend irrigations. I use a smooth diet, a high-vitamin content. As to drugs, is this condition a vagus irritability—a predominance of the vagus system over the sympathetic? Vagotonics can take belladonna in surprisingly large amounts. I use bromids, luminal, and ———— to lessen the irritability of these patients. Sometimes you can get very good results from small doses of castor oil two or three times a day. I have not gotten the results with sodium ————. I have gotten very good results with small doses of castor oil, ten or fifteen drops in capsules, two or three times a day.

Some of these cases are exceedingly intractable and get no relief at all. I have been discussing with my surgical friends the advisability of sympathectomy.

Equaling this group of cases is chronicity, but very much surpassing them in seriousness, is the other large group, chronic ulcerative colitis. I think we can put those in five groups. The first group includes those due to endogenous or exogenous toxins. Possibly pellagra plays a role in this respect. That is not so definite. The exogenous toxins are mercury and arsenic. Some cases are brought about by too great use of mercurochrome. There has been a certain number of cases of ulcerative colitis brought about by the intravenous use of mercurochrome.

The next group is the group of dysenteries, a small group—not so interesting from the standpoint of the number, because we see few cases. We make our diagnosis more from serological studies than bacteriological studies. It is very difficult to pick them up in the stool, and serological studies are possibly more successful. From the standpoint of treatment they are interesting, because there has been a trend now against the use of the serum and a trend toward the use of bacteriophage. This is the only group in which I have gotten good results from bacteriophage.

The amebic group are very interesting. I have talked a great deal about this with ————, who has done brilliant work in Panama.

He says he is never sure he will not miss it, and if he misses it what will the rest of us do? The use of the sigmoidoscope is helpful, getting a specimen ten or twelve inches from the anus.

How shall we treat them? Emetin does not help these chronic cases so much. I have had better results from the use of ———— or from the use of yatrin (?), a Chinese drug. I have tried stovatol (?). If we do not get results, we repeat the treatment again. Some of these cases, of course, have to be treated surgically.

The next group is the malignant group. Seven out of ten cases will be in the rectum, one to two in the sigmoid, and the others in the rest of the colon. We have, therefore, for the asking, means of diagnosing eight or nine out of ten of the cases. For this reason I think that the sigmoidoscope should be part of every doctor's equipment. Digital rectal examination should never be omitted in cases with intestinal symptoms, with blood or pus in the stools. Examining under the hot bath for palpation, sigmoidoscopy and digital rectal examination will give the diagnosis. They can be diagnosed, every one of them, if you use a barium enema under the fluoroscope and the other means I have mentioned.

The fourth group is the tuberculous group. We have methods, you know, now, by which we can find tubercle bacilli in the stool just as easily as in the sputum. It is practically as accurate. We meet this in two groups of cases. The first is a terminal affair; practically every person dying of pulmonary tuberculosis has a terminal intestinal tuberculosis. The temperature becomes more jagged and severe, the downward course more rapid. We have not much to do with these, because they occur as terminal conditions in sanatoria. A few of them clear up. They run very high; Dr. Browne told me 80 or 90 per cent of his patients at Saranac have it. It is very interesting that a person with a little mild tuberculous infection somewhere in the body will develop a group of symptoms ————. It used to be treated surgically; now there is no surgery. It is one brilliant example of the use of the high-vitamin diet or the ultraviolet ray. It is perfectly remarkable what happens in these cases. Is it something due to the fixing of calcium? I do not know. But it is an interesting fact that the ultraviolet ray, or heliotherapy (which you can not get in the East satisfactorily), combined with fruit juices and vitamin A are very effective.

The last group is idiopathic colitis, which is an extremely interesting condition. An enormous amount of work has been done in this country on the subject. This condition was relatively rare; it was first described by Wilkes, in England. While its name is usually associated with ————, of Berlin, all the work was done in England years before he wrote on it. It is extremely rare. Schmidt reported only twelve cases. But this has increased; there is something in our modern life, something in our modern diet, I do not know what, which has increased it. But the increase is not so great as appears in the reports of the Mayo Clinic, because they have included all cases of mild proctitis. It is a very interesting disease. I can not say it is an entity, because I do not know the cause; I do not accept the ——

——— bacillus, quite frankly, as the etiologic factor. It is a syndrome with a very interesting group of symptoms. It generally occurs in young people, in the twenties, though sometimes it occurs in people in the forties and sometimes in babies. We meet it in two forms. In one form it is local and chronic and not very severe. I see many cases in the Veterans' Bureau Hospital in Washington which started in 1918. They have few symptoms—diarrhea, a little pain; they do their work and are not very uncomfortable. Then there is another group in which it is a fulminating affair; the patient goes down hill with the greatest rapidity, with very, very serious symptoms. Sometimes it comes on spontaneously, then the patient improves and goes on all right for a long period of time. I have never seen any cases in which I have seen greater hemorrhage than in these acute cases of so-called fulminating ulcerative colitis. It may be mild; it may be very severe; it may be associated with hemorrhage when only transfusion will save the life of the patient. What are the predisposing factors? I do not know. Many people believe upper respiratory infections are the predisposing factor and have isolated some organisms from the sinuses and from around the teeth and tonsils. I have not done that. Then Moray (?) thinks there is a psychogenic instability. I can not accept that, because it sometimes comes on in the most stable young people. The vast majority of cases start in the rectum or sigmoid. What is the etiology? The etiology, of course, is excessively interesting, because on the etiology depends the proper treatment. First there is the psychogenic factor. Next is the absence of something protective—possibly not an infection, but absence of something which protects the mucous membrane; something has lessened the ability of the mucous membrane to withstand the onslaughts of these bacteria which are always present in the stools. It may be the absence, it has been suggested, of certain vitamins in the food, as shown by the work of McAlister among the starving children in India during the famine there; he found ulcerative colitis. Other studies also make us feel that changes in the colon may take place very much like ulcerative colitis, and that is the basis of one of the treatments. Another view is that it represents an expression of dysentery-bacilli infection; that view has been held by the English. I believe that the cases are fundamentally dysentery. This is increasing; bacillary dysentery is increasing. A third view is that it is due to the pneumococcus. That is absurd, because the pneumococcus, being an easily soluble organism, can not live in the intestine. Others think it is due to a mixed variety. Of course, you have everything here to make a culture tube, and body temperature to incubate it. Others think that it is due to various other organisms, without any real basis. A few years ago ——— advocated ———————, a type falling into the Diplococcus type, which he isolated in rabbits and believed to be the cause of the disease. We studied a very few cases, because these cases to be studied properly under bacteriological control have to be studied very carefully. We isolated from thirteen cases ten varieties of Streptococcus, including ———— bacillus and colon bacillus. In addition to that, this organism has been found in perfectly normal animals by

others. Possibly these organisms are normal inhabitants of the normal intestinal tract. Some years ago some work was done by Lovengood and Harvey Cushing which has been apparently entirely forgotten. Carrow (?) made the discovery that in normal people there is a colon bacilli content of 60 to 65 per cent, and if he would purge these people it would increase the colon bacilli content to sometimes 90 or 95 per cent. We find every one of these bacilli in normal people. They predominate in the normal ileum. Every organism was isolated from the normal ileum which has been described in ulcerative colitis. We at present believe that something has lowered the resistance, we do not know what; maybe the absence of a vitamin; and the organisms from the upper part of the bowel come down and in the ideal culture conditions in the lower bowel grow and flourish.

The diagnosis is not so difficult by sigmoidoscopic study and examination under barium enema. It is not perfectly characteristic, although some people believe it is. It is largely by the elimination of the other factors, dysentery bacilli by serological tests, absence of tubercle bacilli, etc., by the negative findings we can make our diagnosis in the vast majority of cases. The complications, of course, are many. Many cases drift on through years, get a little better, a little worse, always have colitis; others have fulminating attacks. Polyposis is very interesting; constriction, stricture—it is very remarkable how many of these cases, when they do get well, have no changes in the gut at all. Adhesions, perirectal abscess, and carcinoma are sometimes secondary to the polyp. As to treatment, of course we do not know how to treat it, because we do not know the cause. I have come to the conclusion that I have no specific remedy. The utilization of all our simple methods, sunshine (though heliotherapy has no local effect whatever), rest, high-vitamin high-calorie low-residue diet, upbuilding treatment, those are the things. As to irrigation, I have been disappointed in every one, I think; I have not gotten any results with any. Tannic acid makes them a little better; it cuts down the frequency of the stools. Mercurochrome makes them worse. Transfusions help, because they are anemic. Sedatives we must use, because these patients sometimes die from their diarrhea. I have found nothing better than tincture of opium. You have sometimes to take the chance of a habit, because the patient will die otherwise from the diarrhea. Sometimes these cases are so ill we have to transfuse them, and in a few of them I tried continual transfusion—the introduction of a cannula into the vein, using any solution you want, normal salt or other solutions. In the giving of blood you have to alternate the vein, because the vein becomes thrombosed in three or four days. The use of parathyroid and calcium has been suggested recently. It is worth remembering, because anything is worth trying in in some of them. This is on the basis that there is some disturbance of calcium metabolism. I have tried it in a few cases but have not seen much result of any kind. I have depended upon what might be called the common-sense treatment, resting the patient, building up the patient. In the severe cases you have to operate to save life. Possibly we do not operate early enough in the really severe cases.

What operation? Ileostomy and appendicostomy are probably of very little value; in the severe cases they are not enough. In ileostomy you have to keep it open for a long time. Ileosigmoidostomy I have had a few cases. A good deal depends upon whether you think rest is essential or whether you think irrigation from an upper opening is essential. So you see it is not a very encouraging picture, because we do not know the exact cause. I do not know the cause; I think the main thing is building up the patient.

That, in brief, is the problem of colitis. I have tried to call attention to the various phases of it, the various groups, the importance of after care, the difficulties in the study of ulcerative colitis, its etiology and its treatment, the fact that to me it is still a terra incognita. Specific treatment by vaccine and serum I have been bitterly disappointed in. I have not been successful with vaccine or serum. Possibly it has helped, but it has disappointed me. I have come to the conclusion that all these cases which are treated by so-called specific therapy are just as well treated by non-specific protein therapy, typhoid serum or milk.

This is not a hospital study; this is a polyclinic study. It has been done in a large polyclinic in conjunction with some laboratories which have been extremely coöperative in working out our problems. If I have interested any of you, if I have added anything to your therapy, or have encouraged any of you to solve the unsolved problems, I shall be more than repaid.

THE CLINICAL SIGNIFICANCE AND TREATMENT OF CARDIAC IRREGULARITIES

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During the classic period of Greek medicine between 460 and 136 B. C., cardiac irregularities were elaborately studied with the water clock, and since that time, the study of the various arhythmias has been very interesting and absorbing. Since Einthoven invented the electrocardiograph in 1904, more information in regard to the etiology and significance of these conditions has been obtained, than all the years prior to the past century. Today we have the advantage of the great amount of scientific study that has been done at the bedside and correlated with the findings of the physiological laboratories, the X-ray, microscope, polygraph and electrocardiograph, and are now able to more accurately diagnose and properly treat most of the cardiac arhythmias by clinical examination and observation alone. The electrocardiogram, however, shows so clearly the various types of irregularity, including the structure at fault and the origin of an ectopic beat, that I have prepared some slides from our files at the Park View Hospital, showing each type of irregularity. This is not to be a study of electrocardiograms, and to those of you that have not had the occasion recently to refresh your memory in regard to the significance of the various P—Q—R—S—T waves (the letters being merely names

for the different peaks and the letter itself having no significance) I will ask that for the time being, you remember that the "P" wave is made by the contraction of the auricles and the "R" and "T" waves made by the ventricular contractions. The PR interval should not exceed one-fifth second and the perpendicular lines are time lines, there being one-fifth second between each two lines.

The irregular pulse is an abnormality of function and the underlying cause must be searched for, therefore the treatment, and the significance will depend in a large measure upon the condition of the patient having the disorder. For example, the patient with a toxic goitre or pneumonia developing auricular fibrillation will be looked upon differently than will the man of 60 years that is seen with fibrillation associated with signs of failing compensation. It is not uncommon to find two types of irregularity in the same patient, as the case of fibrillation associated with extrasystoles, however, the extra systoles do not seem to make the prognosis more serious.

Sinus tachycardia and bradycardia, although not necessarily characterized by an irregular heart action of pulse, are usually classified under this heading. This simple form of tachycardia is often hard to explain. The condition itself needs no treatment, however, the importance of trying to locate the cause for the increase in pulse rate cannot be stressed too strongly. A metabolism test, dental X-rays, or careful auscultation at both apices after expiratory cough may locate the etiology. Much digitalis is harmfully wasted on this condition before a painstaking examination is made. It starts and ceases gradually, in contrast to the true paroxysmal tachycardia which has a sudden onset and ends in a similar way.

A pulse rate of 60 per minute in a patient that previously noted a rate of 70 to 80 may be termed bradycardia of the first degree. We usually have in mind a rate of 40 to 50 when we speak of simple bradycardia. It may be due to vagal stimulation from the eyes, sinuses, gastro-intestinal upset and many other causes, or we may have a bradycardia with an irregular, slow pulse of 28 to 38 per minute. This was shown by Hyman (1) as a third degree bradycardia due to toxic depression of the sino-auricular node following influenza, and as independent ventricular rhythm occurs at this rate, may be very easily confused at the bedside with partial and complete heart block associated with extra systoles. A diagnosis of the true condition is important and the electrocardiogram is very helpful in the consideration of bradycardia. The only treatment necessary is to locate and remove the cause if possible, the slow rate itself probably causes no trouble and in some cases may be helpful. I will not mention syphilis with each condition but take for granted that each heart case will have a blood examination and the condition treated if present.

Some irritable focus in the auricular or ventricular myocardium may cause a sudden acceleration of the heart rate to about 160 per minute as a rule, and is recognized as auricular or ventricular paroxysmal tachycardia. The auricular type is about twenty-five times more common than the ventricular. These are very interesting conditions, and may cause considerable alarm to the patient, as well as much

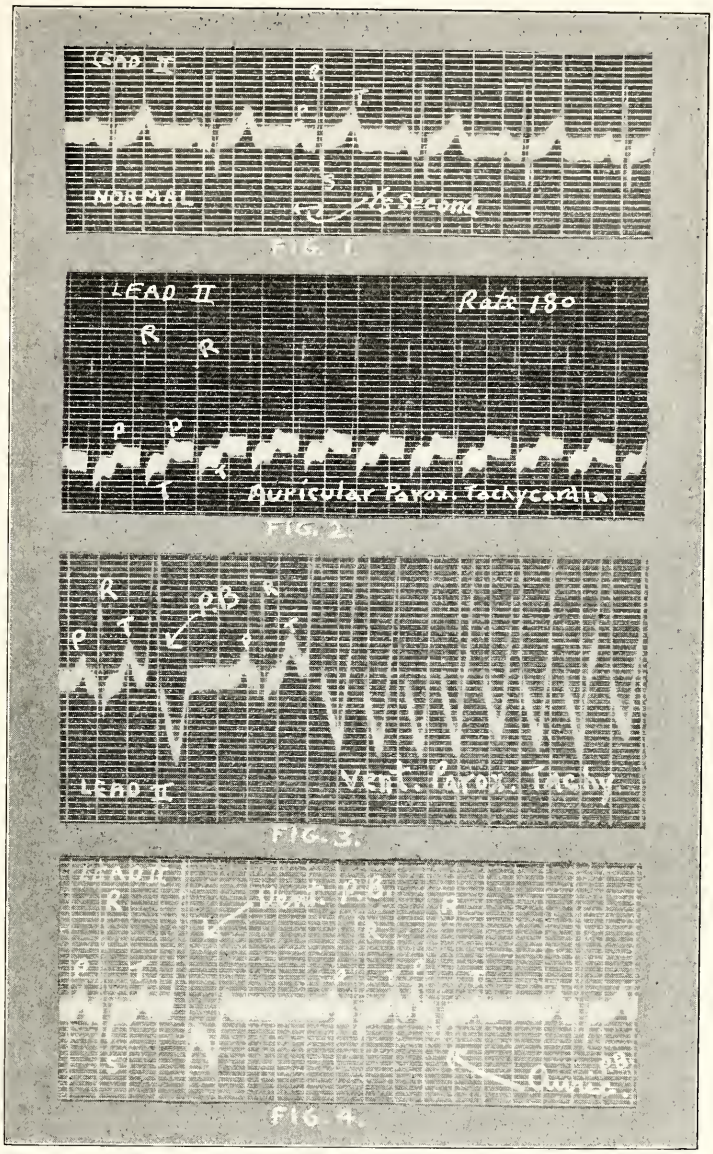

Figure 1. Lead 2 of a normal tracing. Note that the P R and T waves are all upright and that the P R interval is less than 1/5 of a second.

Figure 2. Lead 2 from a case of auricular paroxysmal tachycardia. The rate is 180 per minute, regular, and the P R interval is within normal limits. Tracing does not show sudden onset.

Figure 3. Ventricular paroxysmal tachycardia. Begins suddenly after a normal P R T complex. Note that the premature ventricular beat (P B) has same appearance as the ventricular beats in the tachycardia. In this case the premature contractions were not stopped by exercise when he was seen before tachycardia. Quinidine controlled the condition and 6 grains daily prevented further attacks for four months. Patient had no free HCL and three abscessed teeth.

Figure 4. Shows both auricular premature contractions and the ventricular type. Note the P wave in front of the auricular premature beat and the R wave is nearly normal, whereas there is no P wave in front of the ventricular premature beat. The P R T complexes are normal. The patient was 48 years of age and had no free HCL. Tracing made three years ago. Patient has had no heart symptoms and no heart treatment since.

worry to the physician. These cases are usually seen in patients over 20 years—more common in males probably in a large series—and the frequency of attacks and length varies in different individuals but seems rather constant in the person having the attacks. They last a long time with recovery. Willius (2) reported a case lasting 42 days with ventricular rate around 200 per minute with recovery. In a series by Willius (3) 40% had no organic lesion—in those with a definite lesion there were many types but the most common was associated with exophthalmic goitre. The clinical significance of these two conditions is different. Paroxysms arising in the auricle or A-V node are often due to a disturbance in the nervous mechanism instead of disease of the muscle, whereas, the ventricular tachycardia is usually due to disease of coronary arteries and always considered as evidence of cardiac disease. The two tracings show both conditions very well, in the ventricular type it shows the sudden onset and stopping of the attack. Bancroft (4) and others showed in tachycardia that the systolic output is lowered from 75.5 c.c. to 12.9 c.c. and the output per minute lowered to 1/3 normal.

There are a great many different treatments for stopping auricular paroxysmal tachycardia, most of them depend upon reflex stimulation of the vagus nerve. Hard pressure on the vagus nerve (midway of the carotid artery) on either side of the neck, pressure on the eye balls, with eyes closed, to the point of pain, induced vomiting, and drinking large amounts of cold water are a few of the methods often successful. Digitalis, Morphine, Strophanthin, and during the past few years, Quinidine has had users. I am partial to Quinidine and give six grains every two hours (after giving three grains to test for susceptibility) and it may act very well in six-grain doses daily to prevent attacks. This is particularly true of the ventricular paroxysmal tachycardia.

"Extra systoles" or premature contractions should not be termed dropped beats. The beat may miss at the wrist but the term is confusing, as drop beats actually occur in sino-auricular and other forms of heart block, and have a very different significance.

There is much argument in the literature as to the importance attached to both auricular and ventricular extra systoles. The ventricular occurs about 10 times as often as the auricular and are the ones that the patient complains of as the "flop" or "turnover." There is apparently definite proof that they may be due to a temporary toxic condition from tobacco, digestive disturbance, or a nervous or fatigued condition or associated with various dissipations. They frequently occur with organic heart disease, and rest and digitalis that improves the organic condition often takes away the extra systoles, however, digitalis often brings them on, and especially the type called "coupling"—as seen here in the slide—will disappear after digitalis is stopped. The frequency of the disorder apparently has no bearing on the significance—unless it happens to make the patient more nervous.

I wrote a letter to the medical director of several of the largest old life insurance companies, asking for their action in regard to

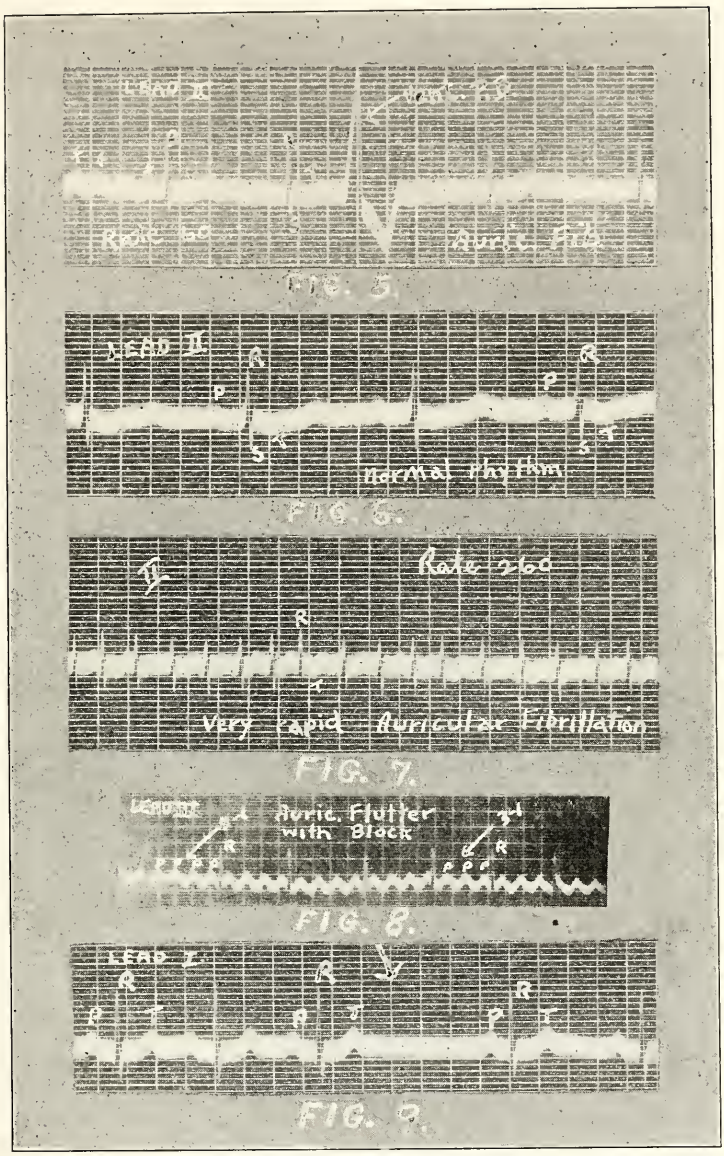

Figure 5. Case of slow auricular fibrillation. Waves indicate fibrillation of the auricle. Note absence of P waves and irregularity in time between R waves. Ventricular premature beats (P B) are complicating the fibrillation.

Figure 6. Shows same case as figure 5 after having digitalis and quinidine. The T wave is inverted, probably due to digitalis, and the P R interval is increased (.28 sec.). This case has taken 1 and ½ grains of digitalis and grains 6 of quinidine for past three years, daily.

Figure 7. Very rapid auricular fibrillation, rate 260 per minute. Case of toxic thyroid that died ten hours after this tracing. The A V node cannot transmit impulses from auricle much faster than this rate.

Figure 8. Tracing smaller than others as was transferred back from lantern slides. Beautiful case of auricular flutter with varying three to one block and four to one block.

Figure 9. Sino-auricular block. Arrow point to complete absence of P R T complexes therefore drop beat at wrist. Compare with figure 10 where P waves were present but R absent. This condition clared up in three weeks without any treatment.

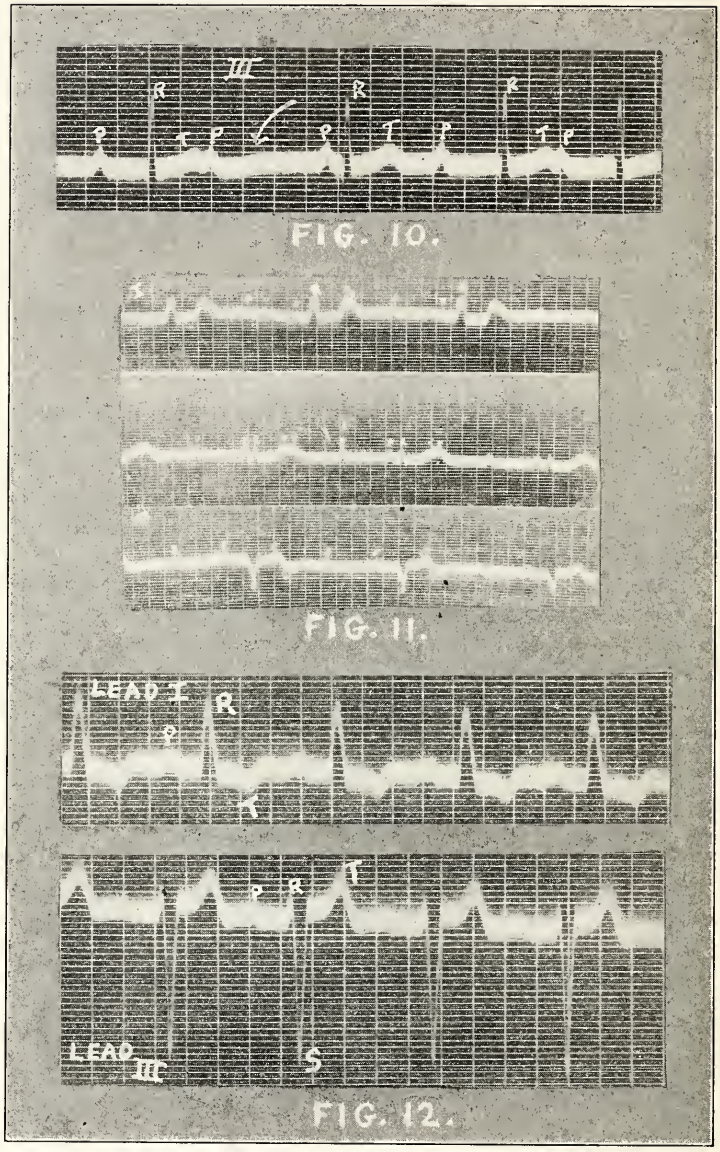

Figure 10. Auriculoventricular block. Note long P R interval (.34 sec.) and also drop beat. From boy 19 with perforated appendix. Tracing one year later showed no block but slight increase in P R interval.

Figure 11. Auricular rate 90, ventricular 30 per minute. Auriculoventricular block and intraventricular block (note wide slurred R waves).

Figure 12. Case of right bundle branch block, leads 1 and 3. P R interval equal .30, therefore auriculoventricular block. Note wide slurred R waves. Pulse rate 72, regular. Diagnosis only from electrocardiogram. Patient died suddenly two months after this tracing.

granting insurance to a patient that was found physically normal after a thorough examination and whose heart presented a normal electrocardiogram except for extra systoles.

From their answers they are apparently taking a safe routine manner of accepting applicants. They all seem to feel that they are of very little significance in young people, between forty and fifty, they may rate the applicant up a little in premium, especially if the extra systoles do not disappear after exercise, and after fifty years they want an electrocardiogram if possible. One company refuses to accept applicants with extra systoles. Another stated that their death rate had been a little higher in applicants that had extra systoles. Dr. Paul White ran a series of cases, however, that did not show this to be the case, and as the life insurance examiners at times may be in greater haste than Dr. White, I believe that more cases of early heart block, or slow fibrillation would be called extra systoles by one not using the great care in examination that Dr. White does. All of his cases were also checked with electrocardiograms.

I think in this connection that we would probably be safe to handle these cases by giving them a real searching general examination and inquire into their habits of smoking, drinking, and exercise (women included). Then an exercise test and a careful history in regard to what the heart will stand. If convenient—and if any doubt arises—have an electrocardiogram to learn the condition of the heart muscle, and if everything is found normal—reassure the patient and tell them about MacKenzie's case—a man of 69 years that had extra systoles frequently for fifty years—and was still in good physical condition. Have the patient come in for check-up examination at intervals and if they are worried, then Bromide or Quinidine may stop them and as a rule more outdoor exercise is of considerable value.

Absolute arhythmia, is the old term for auricular fibrillation, and signifies just what is present clinically. An irregular irregularity increased by mental or physical exertion, that may be paroxysmal or permanent and is usually considered as evidence of definite cardiac disease and due to coronary sclerosis, rheumatic or thyroid heart disease. I am sure we have all seen cases of paroxysmal auricular fibrillation, that returned to normal rhythm immediately after a few doses of Quinidine and no further attack noted, and it seems impossible to demonstrate evidence of organic heart disease. Willius (5) states, however, that he has never encountered auricular fibrillation without organic heart disease. Cases have been known to continue for twenty to thirty years; however, when associated with decompensation the condition is usually considered the beginning of the end.

If the ventricular rate can be slowed and kept slow, with care the outlook may be good for many more years of useful life, as the danger does not seem to be in the fibrillating auricle but in the rapid ventricular action. As in slides shown here, the rate may remain at sixty, and is often hard to differentiate by examination from extra systoles or possibly varying grades of heart block. Often, especially in the hyperthyroid cases, the ventricular rate in fibrillation may range around 120 to 160, and it is quite difficult to determine the irregularity

without careful auscultation over the heart. (Hard pressure in the neck over the vagus may slow the rate enough to make the diagnosis certain.) If the fibrillation began after the onset of the hyperthyroid condition, the outlook is good from the cardiac standpoint after thyroidectomy. With the rapid ventricular rate, much can be accomplished by absolute bed rest—full digitalization and Lugol's solution just prior to operation.

Auricular flutter which is shown in the tracing can give an irregular pulse by presenting varying grades of heart block and as the condition is explained by Lewis and his co-workers as a result of a circus movement in the right auricle, the same mechanism is behind flutter as in fibrillation but less pronounced in flutter.

Its rate is usually around 150 with the auricular rate twice the ventricular rate. Two to one or three to one heart block usually present. It is practically always associated with organic heart disease, and differing from fibrillation in that exercise has no effect on the rate.

The treatment of fibrillation and flutter have, in congestive failure cases, given digitalis and the physician prescribing it in proper dosage, quite a reputation. There is nothing much more beautiful in medicine than a case of fibrillation with congestive failure, that miraculously disappears if therapeutic judgment is exercised in giving digitalis. Heart block is already present in fibrillation, and the idea is to give enough digitalis to increase the block and thereby slow the ventricular beats. Block is always easily increased by digitalis and the pulse may be quickly slowed from 150 to 70 or 80 per minute. By slowing the ventricular rate 75 beats per minute it saves the heart 108,000 ventricular contractions a day. We may digitalize the patient in one day, if the case is urgent or use the slow method and take a week to saturate the patient. It usually requires 1½ grains of the powdered leaf (I prefer a standard leaf tablet to the tincture as I feel more certain of the dose that is given) or 15 min. of the tincture for each ten pounds of weight. Added to this calculation must be enough to take care of approximately 1½ grains daily that is excreted. Thus a patient of 150 pounds will require 1½ grains (or 15 minims) three times daily for seven days and one extra dose of 1½ grains. This allows 10 1.2 grains that is eliminated during the week. It is rarely necessary to give digitalis intravenously. Some physicians prefer to give drachm doses. It would require 3¾ drachms, however, the patient should be seen before each dose is given.

If the fibrillation is not stopped by digitalis we may give Quinidine Sulphate with much benefit in the majority of cases. After the 3-grain initial dose to test for any toxic effect, 6 grains every two hours for 5 doses may be given each day. It seems safe to continue this way for a week unless fibrillation stops earlier. An occasional reported death from Quinidine is certainly no contraindication to such a useful drug. Many heart cases die suddenly that have not had Quinidine.

One important fact to remember is the daily dose of 1½ grains of digitalis or 6 grains of Quinidine to help prevent further attacks. The treatment of flutter is the same as for fibrillation.

In the few minutes left at my disposal I want to briefly mention and show a slide of the heart tracing in each form of heart block. Irregularities are produced by heart block in that beats are dropped completely as is seen in the sino-auricular block which is usually due to over stimulation of the vagus—due to digitalis or other causes and is not considered serious. It requires no treatment except to try to remove the cause.

The auricular ventricular block is more serious, due to a blockage of the impulse from auricle to ventricle and varying in degree from only a slow conduction time with no dropped beats—shown here in the tracing by a long "PR" interval (should not exceed 1/5 second) to a complete heart block with the ventricle beating at a rate of 25 to 30 beats per minute. Digitalis is nearly always the cause of the lesser grades and must be carefully inquired about—however, as in a case shown here in a young boy after a stormy siege with a perforated appendix, developed a definite A. V. Block.

In diphtheria, complete block always ends in death within one to nine days. The significance of complete A. V. block is that it is nearly always due to arteriosclerosis, possibly syphilis (look for it and hope for it) or rheumatic myocardial infection, therefore the treatment is to treat the arteriosclerosis (whatever that treatment is) and we all know it is unsatisfactory.

Bundle branch and intraventricular block are to be accurately diagnosed by the electrocardiogram, and the prognosis in bundle branch block is always serious. The patient usually dies within one to three years after the diagnosis is made. In the slide shown, the patient lived two months. King (6) reports some cases that were diagnosed by physical signs but where such a prognosis is to be given as in this condition it should be proven by electrocardiogram. Where the arborization fibers are blocked (intraventricular block) the prognosis is better and the patient may work comfortably for years. In high grade block associated with Adams-Stokes' syndrome, some drug that will depress the vagus or stimulate the sympathetic is indicated. Some of these are Adrenalin, Atropine, Caffein, Ammonia, etc., and Barium Chloride in ½ grain doses every four hours is a valuable aid in stimulating ventricular activity and may be given over a long period of time. It may cause toxic symptoms to arise and yet in one case Herrmann and Ashman (7) in which 20 grains were given by mouth (by mistake) the only symptoms were nausea, vomiting, and diarrhoea. Thyroid in one to 6 grain doses is worthy of trial to help improve the ventricular rate. Probably the most significant thing about all heart irregularities in this fast age when so many of our people are dying of heart disease, is that it is a clear indication to the patient and physician that something serious may be beginning or is present—and after a careful study of the disease that has the patient, and the patient that has the disease, the facts should be laid on the board and make the patient have confidence in what you tell him. Early diagnosis and proper treatment is what we are all striving for. Digitalis is probably improperly used more than any other toxic drug. It is contraindicated in most of the irregularities. The definite indications

for it should be known, and when the patient needs it, should get the proper dosage to be of value. Pain over the precordium, rapid or irregular pulse, loud murmurs, or "sinking spells," are certainly no indication for digitalis without other signs or symptoms. Ill-directed treatment (a patient with digitalis auricular fibrillation, from treatment of extra systoles with digitalis and that was cured by removing three abscessed teeth) must be guarded against because we have learned by experience and the experience of our teachers that the heart muscle is a powerful thing and will "stand-by" a long time if we will try to give it the amount of rest and care that it deserves.

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DISCUSSION

THE CHAIRMAN: Dr. Kinlaw's interesting paper is now open for discussion.

DR. CHRISTOPHER JOHNSTON, Durham: It is rather difficult to discuss a paper of this type, which shows so clearly and lucidly the diagnosis as made by the electrocardiograph in various types of cardiac irregularities. I think those of us who use the electrocardiograph find it interesting to try to make a clinical diagnosis before the patient has the record taken. Frequently we are able to do it, but sometimes we are unable to do so. Then, as to the limitation of uses of the electrocardiograph I think, correctly speaking, electrocardiographic study is part of the general study of any cardiac case and should not be omitted. Yet, from the work that has been published dealing with electrocardiographic work, the tendency seems to have been to place undue stress upon the electrocardiogram in cardiac diagnosis; certain observers seem willing to make a diagnosis of coronary disease and other conditions purely on the basis of the electrocardiogram. We do see people, old people, who on autopsy show very definite coronary occlusion who show no signs in the electrocardiogram.

I was in Baltimore while Dr. King was doing his work and led him up to quite a lot of patients. It did seem to us quite true that the diagnosis could be made in a considerable number of cases, but it is extremely difficult and always requires verification by the electrocardiograph.

I should like to emphasize the use of powdered-leaf digitalis in cardiac therapy, for the simple reason that it is more constant. Often we can not tell, when the patient receives a prescription for digitalis, exactly the potency of the tincture used, if they have it filled at any

drug store. I think the essential point is for the physician to select one preparation and use it exclusively as far as possible.

I think we might well question the point of Willius that auricular fibrillation is due always to organic heart disease. Recent work has shown that the thyroid has apparently no effect on the heart in the nature of organic changes, nor does it lead to cardiac disease of itself, and that young individuals with hyperthyroidism stand up well under the strain of the persistent tachycardia. It is, as a rule, only in the group that comes on later, especially in the toxic adenoma, that we find the evidence of myocardial insufficiency. But the young patients do frequently show auricular fibrillation. I have recently seen one patient whose heart was entirely normal so far as we could determine but who had auricular fibrillation coming on after an attack of influenza. Tracings were made, the patient was given quinidine, the rhythm returned to normal, and after that there was no evidence of cardiac disease. This does happen, but it must be extremely rare.

Another important point, I believe, is the contra-indications for quinidine. A number of the fatalities that have occurred would not have occurred, possibly, had the patients been selected properly. Although it would take up too much time to go into a discussion of the selection of the patients, I think we may say briefly that the patients in whom quinidine is contra-indicated are those in whom we fear thrombus formation in the left auricle; in other words, patients in whom the auricular fibrillation is of long standing or who have evidences of considerable dilatation of the left auricle.

Dr. R. F. Leinbach, Charlotte: These electrocardiographic tracings must look highly technical to people who are not accustomed to doing electrocardiographic work, and yet it is an excellent thing that they should be brought before the society from time to time, because they unquestionably bring out important points about the disorders of the cardiac mechanism which all certainly should know. Five or six years ago people referred to the electrocardiograph as an instrument for carrying mechanical means of diagnosis to an absurdity. Ten years ago, when I put in an electrocardiograph, there was not another one in North Carolina; now I am sure there are at least eight or ten in the state. These electrocardiographic tracings bear exactly the same relation to cardiac diagnosis as the X-ray does to gastrointestinal diagnosis. The electrocardiogram does not tell you everything, but what it does tell you is very important.

We have been speaking about digitalis. In the smaller towns of North Carolina I do not think the use of powdered digitalis leaves is practicable; it has to be kept in stock too long. It is all right in the larger towns to use digitalis leaves, but in the rural communities I think the tincture of digitalis is used ten times to once the powdered leaves are used. The tinctures are quite serviceable, quite useful, and quite reliable. The main difficulty that the physician encounters in prescribing the tincture is that he does not get the dose he thinks he has; he prescribes fifteen minims and gets fifteen drops, which is about eight minims. Many houses now put out a minim dropper with tinc-

ture of digitalis, and I think it is well for the physician to make the patient spend fifty cents more and get a minim dropper.

Dr. J. T. Taylor, Greensboro: I was very glad to hear Dr. Johnston bring out the fact of the danger of quinidine in fibrillations. I think the place for quinidine is in acute fibrillations, as Dr. Johnston brought out in reporting the case of a patient with a post-influenzal attack. In the event we have fibrillations of long standing, I have seen the administration of quinidine prove instantly fatal. Those cases, I think, are the cases for digitalis.

Dr. Kinlaw, closing the discussion: I do not wish to lengthen the discussion any further; however, I appreciate the points that have been brought out during the discussion. As was mentioned, you must select the cases for Digitalis and Quinidine; however, before closing I wish to get the point settled in regard to my opinion about Quinidine. It is true as the doctor has stated, that cases have been reported of sudden death following the use of the drug, however there are many large series of cases reported by different authorities without a single death. In cases with decompensation where there is definite organic disease, I think the safe thing to do is always digitalize the patient, figuring one and a half grains for each ten pounds before starting Quinidine and then be certain to give the initial dose of 3 grains to start with to test for any idiosyncrasies. If these rules are followed Quinidine is as safe to use as any other drug that is of as much value, in any other condition.

To my mind the most essential thing about irregularities is to demonstrate by examination, or electrocardiograph if necessary, the type of irregularity and be certain that Digitalis is indicated before the drug is given; and if it is to be given, figure out the dosage and give the proper amount.

INDIGESTION

H. B. Haywood, M.D., Raleigh

Indigestion is a term which is used in a loose way to cover all forms of stomach disease. Strictly speaking, it is non digestion of food. The factors influencing digestion are so involved with the rest of the alimentary tract and bodily organs that we may say that the stomach merely reflects like a mirror conditions which exist elsewhere in the body.

The study of indigestion, therefore, involves not only a consideration of both the normal and abnormal physiology of the stomach but of the other organs of the body which, when diseased, act reflexly on the stomach.

The majority of digestive disorders are not the result of definite organic lesions, but of functional disturbances of either a motor, sensory, or secretory nature, and are termed dyspepsia. They can be rather roughly divided into three types: the primary, which in the main results from faulty habits of eating and drinking; the nervous, which is psychogenic; and the secondary, which is a reflex disturbance

consequent to disease elsewhere. The term gastritis should probably be applied to the conditions in which there is a definite evidence of inflammatory change, and the term dyspepsia to the large group of disturbances in which there is no appreciable disease of the organ to account for the symptoms.

The part that the stomach plays in digestion is to serve as a container for food and drink, and by its motor and secretory activity to reduce it to a semifluid consistency suitable for the digestive activity of the enzymes contained in the intestinal juices and also those of the liver and pancreas. It warms and sterilizes food. It initiates protein digestion, and due to relative motor inactivity for half an hour after taking food continues the ptyalin's digestive activity on carbohydrate food. To carry on its functions adequately it must pass on its contents at a reasonable rate of speed.

Peristaltic waves travel from the anatomical dividing point in the stomach, the incisura angularis, and sweep food onward. The waves travel faster than the food and accentuate the churning.

Functionally, there are two parts of the stomach. The proximal end is composed anatomically of the fundus and half the body. This forms the gastric reservoir, where the food is stored under a small amount of pressure. Food stimulation relaxes the cardia, and the food passes into the center of the stomach. This allows the ptyalin digestion to continue. In the distal half of the churn pepsin and hydrochloric acid are mixed with the food. The gastric juice is made to flow first by stimuli coming along the vagus nerves from the brain and later by food in the stomach. (There is no absorption of food or water in the stomach.) The stomach initiates digestion, and the small intestine finishes the work. Fluidity is the factor most important in governing the departure rate of foods from the stomach. As soon as liquified, foods tend to move.

In the duodenum, which means twelve inches long, the gastric contents are mixed with bile and pancreatic juices. The jejunum, which means empty, and comprises 2/5 of the small intestine, is irritable and pushes food to the ileum. Eripsin in the intestines splits further the protein molecule. (The small intestine is twenty-two feet long in the cadaver, whereas in the healthy living adult it is not over six to ten feet in length. Food passes on due to the rythmic swaying movements and the churning and rubbing action of the small intestine. The greater degree of irritability at the top than at the bottom, coupled with the down-hill force, increases the peristalic wave. Disease lowers the irritability, and nervous stimuli can reverse the grade. The sphincter at the ileo-caecal valve prevents regurgitation and also too rapid emptying of the small intestine. In the lower ileum and in the caecum only are conditions favorable for bacterial absorption. The colon returns water to the body as its chief function, and due to the relatively slow peristalisis of this portion of the intestine the food mass is pushed on slowly here.

The ganglionated nerve plexuses are the myenteric or Auerbach, which is found between the muscle coats and correlates the activity of one section of the intestine with another; whereas Meissner's plexus

is found between the muscle and mucous membrane and serves to regulate the secretory activity of one part of the mucous membrane with another, and also through its connection with Auerbach's plexus to correlate the activity of the intestinal muscle in any one segment with the work it has to do.

Alvarez advances the interesting, even though unproven theory in regard to auto-intoxication and constipation, that "While there is a possibility of chemical and bacterial poisoning from an accumulated and constipated fecal mass in the rectum, in which the major portion of the bacteria are dead and from which portion of the intestine there is relatively little absorption, it is not a chemical process that causes the feeling of poisoning, but it is due to the pressure of the mass of fecal matter on the sensitive nerve endings of Auerbach's and Meissner's plexuses." A bowel movement is to an extent pyschic and brings a feeling of relief, that a desired object has been accomplished. He states that most toxic absorption from the intestine is during periods of diarrhea and not during the periods of stagnation. However, he admits in his final conclusions that there may be personal idiosyncrasies, as tests have demonstrated that the rectum in some people is relatively insensitive to pressure.

A definite relationship exists between the blood reaction and the function of the glandular apparatus of the stomach even in the fasting state. The reaction of the gastric secretion is initiated reflexly and is continued chemically. It contains 0.4% to 0.5% of hydrochloric acid. After admixture with food and partial neutralization the percentage falls to about 0.2%, which is the optimum of Hydrogen Ion concentration for the action of pepsin. As the neutralization elements are used up, there is a tendency for the acid to rise. This it does until about two and one-half hours after a meal, when there is a drop in the free hydrochloric acid content. This has been shown to be due to the regurgitation of the alkaline contents of the duodenum. An excessive amount of hydrochloric acid used to be thought of as an indication of hypersecretion, but now it is interpreted as being more likely due to pyloric spasm or obstruction. Some authorities (Goodhart and Bolton) do not consider the acid curve of primary importance, but consider the estimation of total chlorides as a truer indication of gastric secretion, for as the percentage of acid falls the percentage of neutral chloride increases. They conclude that the acid curves represented the progress of neutralization, which in turn depended entirely on the relaxation of the pyloric sphincter at certain stages of digestion, permitting duodenal regurgitation.

Each individual has his own chloride point. Roughly, it is /10 normal solution, or about the same as the chloride strength of the plasma. The stomach will not be emptied until the chloride point has been reached. It appears, then, that one of the main functions of the stomach is to bring the food contents up to a certain salt strength or osmotic pressure which will be acceptable to the intestine. It has been shown that if food of less than the required osmotic value or chloride strength enters the intestine it is promptly rejected into the the stomach once more, with the result that the acidity falls and

the inorganic chloride curve rises. This then is the biological meaning of duodenal regurgitation: when the stomach contents are isotonic with the blood, they enter the intestine without stimulating their own rejection and the stomach is emptied.

It has been suggested that practically all dyspepsias can be divided into two main classes: (a) those in which the reflux of duodenal contents is defective, the so-called hyperchlorhydric and duodenal ulcer type, and (b) those in which the reflux is excessive, the so-called hypochlorhydric or eructative and flatulent type.

THE INTERPRETATION OF GASTRIC FUNCTION

The interpretation of gastric function can be satisfactorily studied by the fractional test meal, which permits (1) extraction of the fasting residual contents of the stomach for examination, showing the secretory and motor activity of the stomach and permitting the search for pathologic products; (2) use of a simple test meal which leaves the stomach normally in two hours, (3) an estimation of the gastric secretion throughout the period of gastric digestion, (4) and an estimation of the evacuation time and motor activity of the stomach. Delayed digestion time is indicated by a fasting residuum of more than 50 c.c. of gastric juice or 10 c.c. of food sediment in the two-hour extraction.

The Histamin test has been introduced to differentiate between a false achylia and a true achylia gastrica. A profuse flow of gastric juice rich in hydrochloric acid and enzymes results from the injection of four minims of hystamin hydrochloride in one-to-one-thousand solution in a normal stomach. It brings no response in a true achylia.

In interpreting the types of Indigestion, the history of the case is of primary importance, next follows the general physical examination, then the gastric analysis and laboratory examinations, and finally the X-ray and flouroscopic investigations.

PRIMARY DYSPEPSIA

The fundamental cause of a primary dyspepsia is not an inherited or acquired instability of the nervous system, but such physical factors as dietetic errors, rapid and careless eating, poor mastication of food, and poor choice of food and drink. The treatment is, of course, the elimination of faulty habits, and the establishment of a healthy mode of living.

Alvarez, in speaking of nervous dyspepsia, quotes William James in saying, "The Lord may forgive us our sins, but the nervous system never does." Medical terms and thoughts that were current several decades ago are scarcely heard today, so it is interesting to note that even with the advancement of accurate and scientific diagnosis that comes with the aid of the laboratory, the X-ray and surgical operations on the intestinal tract, nervous indigestion is still spoken of as an entity, even as it was in 1879 when it was described by W. C. Leube. He pictured it as purely a neurosis. Normally, according to

Leube, a large majority of individuals experience some discomfort after a more or less heavy meal, usually in the form of epigastric fullness, cerebral congestion, lassitude, irritability, fatigue and sleepiness. He ascribed this to a direct mechanical irritation affecting the gastric nerves as the act of digestion begins.

It is when these physiologic manifestations of digestion are exaggerated without being referable to any particular type of nutrition that they become a fruitful source of complaint and finally develop a chronic condition due, primarily, to an abnormal reaction of the gastric nerves, and secondarily to the entire nervous system. The cause of this pathologic reaction, he maintained, resided in the gastric nerves and in them only. Ewald claimed that nervous indigestion was not an independent circumscribed disease, but a symptom complex partially based on hysteria or neurasthenia. While admitting the absence of anatomical changes, he nevertheless believed the gastrointestinal function was abnormal. In recent times opinions seem to concur that motor and secretory activity of the stomach are disturbed and may present variations in one and the same individual. Osler describes nervous indigestion as being either hereditary or brought on by indiscretion.

Thomas R. Brown describes gastric neurosis as constituting a very large proportion of gastric disturbances. He describes the cause as an acquired or congenital irritability of the nervous system, an abnormal psyche, and a hyperesthesia or paresthesia of the portions of the vagi or sympathetic which supply the stomach. He describes a polysymptomatic type which shows signs of hyperexcitability of the other branches of the vagus and sympathetic that supply the heart and intestines. Frequently the gastric syndrome predominates so distinctly as to justify independent consideration, but the underlying psychic instability must always be regarded as of fundamental importance in therapy.

Gastric neuroses are divided frequently into the hypersthenic and the hyposthenic types. The former is characterized by hypersecretion, hyperperistalsis, and hypersensitiveness, and the latter by sluggish motor and secretory activity. For the sake of convenience they may be classed as Sensory Neuroses which include (1) Bulimia or hyperorexia, an increased sense of hunger, (2) Anorexia or loss of appetite, (3) hyperesthesia of the gastric mucous membrane, (4) Gastralgia or cardalgia, which is rarely of nervous origin but is usually organic. Motor neuroses include eructations of swallowed air, regurgitation of food without nausea and vomiting, and hyperkinesis or peristaltic unrest of the stomach which is usually due to a pylorospasm of organic nature. Secretory neuroses are very complex in their make-up, and it is necessary to correlate all the data obtained in your examination to correctly interpret your findings.

More accurate methods of diagnosis of late have led to the conclusion that a large proportion of the cases of hypersecretion or hyperacidity are of reflex origin. Pyrosis, fullness and discomfort from one to three hours after eating and acid eructations are the usual symptoms. The diagnosis depends on a free acid of 40 or over and

a total acidity between 70 and 110 and the absence of all organic disease. Hyposecretion is in a sense a depressive neurosis which may be periodic or constant. There is a frequent association with mental fatigue, persistent worry and strain, especially in people of an unstable nervous habit. The absence of a wasting disease as cancer, tuberculosis, or anemia must have been proven before a diagnosis can be established. The symptoms are vague. There is a loss of appetite, a fullness after eating, absence of pain, eructations of gas, sometimes constipation, and sometimes diarrhea, especially with an achylia.

SECONDARY DYSPEPSIA

It should be borne in mind that every acute and chronic disease is accompanied with some gastric symptoms which may be transient or functional, or persistent with changes that become organic.

Gall-bladder disease with or without stones appears to be the commonest type of organic disease of the intestinal tract that causes secondary dyspeptic symptoms. Bloating and belching in middle age immediately after eating causes the medical man to focus his thoughts on the gall bladder. Peptic ulcer is the next commonest organic disease of the intestinal tract with dyspeptic symptoms. It is more frequent in males and is usually in the duodenum. It is accompanied with gas and a feeling of pain or distress in the pit of the stomach. The pain has a periodicity about it and often comes after the middle of the night. In the early stages the pain is relieved by alkalis. Pain that disturbs the sleep is usually organic. The dyspeptic symptoms of chronic appendicitis are sometimes so predominant that the underlying cause escapes detection.

Cancer of the stomach must be looked for in every man and woman who having reached middle life with a perfect digestion suddenly finds it beginning to fail. Cancer of the colon should be thought of immediately whenever a man or woman of over thirty begins to have trouble in securing a bowel movement, since cancer may grow slowly and be asymptomatic for months until the lumen of the intestine is obstructed. Disturbances of the mechanical functions of the intestinal tract cause the largest number of the symptoms. As A. E. Taylor once wrote, "We have duplicate plants for the chemical digestion of food, but only one tube for the transport of food and residue."

Intestinal parasites are a frequent cause of digestive disturbance, particularly the amoeba in certain sections of our country. Circulatory disease is frequently first shown by gastric fullness and discomfort after meals. Arteriosclerosis sometimes shows itself first as a purely gastric disorder with an atonic dyspepsia and epigastric pain. One of the earliest symptoms of tuberculosis is a functional dyspepsia. In both hypo- and hyperthyroidism achylia usually appears. In the former it is associated with obstinate constipation and in the latter with diarrhoea. The achylia and other gastric symptoms of pernicious anemia are evidences of the organic nature of the accompanying disease of the stomach. Renal disease, especially in the middle-aged person, should be thought of as a cause of dyspepsia. Diseases of the

central nervous system and the gastric crises of tabes might readily pass unrecognized as a cause of dyspeptic symptoms. The list can be multiplied when we consider the symptoms of organic disease, but it is beyond the scope of a paper of this type.

In conclusion, I may say that an accurate knowledge of the symptoms of a functional neurosis of the stomach and those of organic disease, with ability to differentiate between the two and wisdom in correlating all of the discovered facts, will lead you to a reasonable hope of aiding your patient.

Sir William Osler in his selected essays says that to a medical audience his favorite quotation is:

> "Knowledge and wisdom, far from being one,
> Have oftimes no connection; knowledge dwells
> In heads replete with thoughts of other men;
> Wisdom in minds attentive to their own.
> Knowledge is proud that he has learned so much;
> Wisdom is humble that he knows no more."

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REPORT OF AN UNUSUAL CASE OF SUBACUTE LEUKEMIA OF MIXED TYPE WITH AN INFECTIOUS-LIKE ONSET

F. R. Taylor, M.D., High Point

A 39-year-old white filling station proprietor came to my office on August 18, 1930, complaining of night-sweats and aching in his left chest. He stated that he believed himself to be in good health four weeks previously. At that time he drove to Bennettsville, S. C., a distance of about 100 miles. The night of his arrival in Bennettsville he was suddenly seized with aching in his legs and epigastrium, and a "drawing sensation" in his knees. He was nauseated at times for several days, and then had several attacks of vomiting, but this followed taking some medicine. No hematemesis. Stomach has been sour at times. He has a lot of gas, especially per rectum after a purge. His bowels, usually regular, have been *very* constipated since the onset of his illness. He states that another physician gave him a "blood tonic," some ammonia, and some red medicine for pain. He is also taking B.B.B. pills for his bowels. The doctor's medicine seemed to upset him, so he left him and went to a lady chiropractor, who failed to help him. He has had no sore throat. He has had some cough for two or three weeks, but attributes this to taking cold from getting

drenched at night by his excessive sweats. He has also felt a throbbing pain in his left chest, not synchronous with his heart-beats. At the very onset, he had a swelling in the left groin with three or four hard kernels under it, the whole thing the size of a bantam egg. He had one shaking chill two weeks ago. Just about this time the swelling began to gradually disappear from his groin. He is quite short of breath—can't stand the effort of pumping the tanks in his filling station. His feet do not swell. He has an occasional occipital headache, and a good deal of lumbosacral backache, but the backache has cleared up recently. No urinary symptoms other than a very highly colored urine, which might be attributed to his profuse sweating. He says that he has lost 26 pounds in one and one-half months, and for a while he lost about two pounds a day.

His past history shows that he has been unusually free from most diseases, the only positive findings being that he had the usual children's diseases in childhood, mumps a second time three months ago without orchitis, and a Neisserian infection ten years ago for which he was treated two or three months. He never had syphilis. He never had a surgical operation. He did have his left arm wrenched by a machine and two ribs cracked two and one-half years ago.

His habits are not remarkable. His appetite, usually good, has been poor since the onset of his illness, though better for the past week. He eats a fairly well-balanced diet three times a day. The first physician he consulted had his blood examined at a hospital and put him on liver, and he is now eating about one-half pound daily. He drinks water freely. He did drink about a pint of milk daily till two or three days ago, when he gave it up because he thought it caused gas to collect in his bowels. He takes one cup of coffee daily, not much tea, and no coca-colas. He did smoke two packs of cigarettes daily, but now less than one. No alcohol, though he used to drink some. He got drunk once, and ever since that alcohol has made him sick. He was never a steady drinker. He has slept very poorly of late because of his drenching sweats. He has also felt feverish, though the first physician he consulted said his temperature was normal.

His father died of cancer of the stomach. Mother died of some gynecologic trouble, not cancer. Five brothers and sisters well. Two died of pellagra six or eight years ago. One brother died suddenly, aged 63, cause unknown. His first wife died of influenza with pneumonia. Present wife well. Neither one had a miscarriage. No children.

Physical Examination: Height, 5 feet, 7 inches. Weight, 140¼ pounds. Standard weight, 152. Temperature, 98.5. Pulse, 110. Respiration, 21. B. P., 128-80.

Face shows very marked bronzing—this is not his normal color at all—that is rather rosy. Sclerae are not yellow—it is not jaundice. Deflected nasal septum. Teeth very bad—lots of them carious and badly discolored. Mucosae very pale, except tongue is a rather beefy red. Skin pale except for bronzed face. Neck negative. The lower part of the chest expands very little with respiration—his breathing is done almost entirely with the upper half of the chest and the abdo-

men. Anteriorly, there is dullness to flatness on percussion from the fifth ribs down on both sides. Breath sounds are decreased, but not wholly absent in these areas. Heart appears normal—I did not make out any displacement of it. Posteriorly there is slight tenderness in the left suprascapular space. No unusual dullness posteriorly. Just below angle of left scapula there is cogwheel respiration. No rales heard, and no other abnormalities noted in chest.

Abdominal examination shows the liver extending three fingers' breadth below the costal margin, and a gross mass on the left, probably spleen, the size of a large grapefruit. Genitals negative. There are markedly enlarged inguinal glands on both sides, especially the left. These do not fluctuate. Rectal examination shows some external hemorrhoids. Otherwise negative. Extremities negative—no edema or varicose veins.

The urine was a dark brownish amber, and strongly acid. It showed a light cloud of albumin, but no glucose. A few hyalin casts were found, from two to seven pus cells to a 1/6 field, and an occasional red cell. He had had a negative Wassermann two weeks previously. The blood count was diagnostic, and will be given in tabular form. I got in touch with the hospital where his first blood count had been done, and they reported that they had lost their record of the count, but that the technician clearly remembered that the white count was 8,000, but that the stained film showed all kinds of immature forms of white cells.

The results of my observations on the blood may be seen in the table. The patient was referred to Dr. P. W. Flagge for treatment with the X-ray, which was regulated by the blood picture. I was enabled to keep him under fairly close observation nearly five months. He died rather suddenly on January 10th of this year at 3:30 A. M. I have to confess that I went to see him in the early afternoon of that day, only to be informed of his death. I inquired why they had not called me when he was in extremis, and his wife replied that he knew he was going to die, and did not want a doctor present at that time! As the entire family seemed very appreciative of my efforts, I did not take this as a vote of lack of confidence, but as an individual peculiarity on the part of the patient. Most unfortunate, however, was the fact that when I got there the body had been removed to an undertaking establishment and had been completely prepared for burial, and an autopsy was unobtainable. I had fondly hoped to report this case with autopsy material to this section, but "the best laid plans o' mice and men gang aft aglee."

In the midst of his illness, Dr. Stephen Davis of Charlotte, who has been very keenly interested in leukemia, saw this patient with me. He was much interested in him, and I hope will discuss this report. In the later stages of his disease the patient developed partial blindness associated with a typical leukemic retinitis.

The course of his disease can be followed on the table mentioned.

Several features are of unusual interest in this case, which we may perhaps discuss with profit at this time.

1. The sudden onset of an infectious-like type.

2. The rather unusual picture four weeks after the apparent onset—drenching sweats being the leading symptom. The marked bronzing of his face was also of great interest.

3. The extraordinarily rapid loss of weight during the first four weeks of his symptoms.

4. The relatively low white counts—for four months 22,800 was the highest count obtained. Fifteen days before he died he reached the record count of 41,300.

5. The relatively high count of myeloblasts rather than myelocytes, showing, I felt, a peculiar malignancy of the process, as the myeloblasts are more primitive cells than myelocytes.

6. The mixed type of the disease, showing both splenomegaly and the blood cells of the myelocytic series, and involvement of lymphatic glands with some elements in the blood picture suggesting lymphatic leukemia. Mixed forms, are, of course, usual in the acute leukemias.

7. The duration of the disease—shorter than the ordinary chronic type, but longer than the typical acute leukemia.

8. The age of the patient. Acute leukemia usually occurs during the first 20 years of life, chronic myeloid during the second 20 years, and chronic lymphatic during the third 20 years.

DISCUSSION

The Chairman: The paper of Dr. Taylor is now open for discussion.

Dr. Stephen Davis, Charlotte: Dr. Taylor very kindly invited me to see this patient with him. I must confess after seeing the nature of his blood it was a difficult problem to classify him as a true myelogenous leukemia. It was unfortunate, as Dr. Taylor has said, that he was not able to obtain autopsy study on the case. It is a difficult matter, in the presence of a leukemia and in the presence of an anemia, as we have here, to prove the case, despite the fact that he had night sweats. He may have been suffering from Addison's disease. It is apparent that the definite focus of infection was not located. It has been my feeling, even though my experience has been limited in the study of leukemias, that the neoplastic condition, if I may be permitted to use the term, as certain authors have suggested, is a malignant condition, a condition which first, we find by taking a careful history, has been preceded by an acute infection. I had one case, a child nine years of age with an acute myeloid leukemia, in which she carried an acute tonsillar infection over a period of four years following an attack of quinsy. There was complete prostration, shortness of breath, and definite edema of the ankles. Despite the fact that her cell count when first seen was 18,000, she ran a stormy course over a period of three months. I can see how, in the presence of infection, demand may be made upon the bone marrow to such an extent that the function is lost, in view of the overwhelming production and regeneration of white cells. An interesting feature of this case is that we have a stimulation of the white cells, a stimulation not in production of the normal polymorphonuclears and the eosinophiles,

TABLE SHOWING PROGRESS OF CASE OF SUBACUTE LEUKEMIA

DATE (1930-1)	W. B. C.	PERCENT												REMARKS
		P. M. N.	L.	L. M.	T.	E.	B.	N. My.	E. My.	B. My.	Mby.	N. R.	Hgb.	
8-18	22,800	14.5	26.5	1.75	1.75	0.5	0	8	1	0.75	38	9.25	35	Referred to Flagge for X-ray treatment.
8-21	20,150	11	25	0.7	0.3	0.3	0	13	0.3	1	40	1	36	Better. No sweats last night.
8-25	13,850	18,5	26	5	1.5	0.5	0	8	0.5	1	29	10	30	X-ray suspended.
9- 1	11,300													Opiates for pain in arm. No glands except in groin.
9- 8	14,800	28	10	2.5	0.5	2	0	24	0	1	18.5	13.5	50	
9-15	18,200	28	16	7.5	0.5	1	0	15.5	0.5	1	30	7	50	Better. Give some Valentine's liver extract.
9-22	7,500	36	32	1	0	4	0	9	0	1	17	4	45	Better. Driving car now.
9-29	10,100	31	10	2	1	2	0	28	0	0.5	25.5	5	60	Much better. Spleen about a third as large as it was (3 fingers below costal margin).
10-14	9,400	28	25	0	1	6	0	15	1	0	19	5	55	Headache and dim vision. Codein and aspitin, copper and iron.
10-25	6,800	45	21	6	1	2	0	8	0	0	16	2	60	Aching tooth extracted by Dr. Clayton.
11- 8	15,700	19	37.5	1.5	0	2	1.5	3.5	0	0	35	0.5	50	Vision failing. More aching teeth extracted.
11-23	10,000	41	20	1	2	2	1	5	0	1	27	0		Edema of feet.
11-28	9,100	17.5	17	0	0.5	0.25	0.25	2.75	0.5	0.25	61.25	0	65	Severe pain in back. Spleen much larger.
12-12	15,750	32	12.75	1	0.75	0.75	0.25	8.25	0	0.25	44	4.25	?	Much worse. Requires morphin. Retinitis.
12-26	41,300	11.5	8	0	0	0	0	8.5	0	0.5	71.5	1.5	?	X-ray treatment resumed.
1- 1	37,750	5	14	0	0	0	0	5.5	0	0	75.5	0	?	More X-rays.
1- 8	38,450													Edema of lungs. No X-ray.
1-10	EXITUS,	3:30 A. M.												

but that we have a predominance of the mixed type of cells, have a predominance of myelocytes. Where they are rising in count you have definite evidence of a congested spleen, which is not the case at all with myelogenous leukemia.

In discussing another important phase, agranulocytosis, Winston Churchill has pointed out definite correlation of the red cell formation in the bone marrow, also the formation of white cells, also the relation of platelets. In that he points out that with the reduction of red cells, white cells, and platelets we always have a fatal termination, which we see in agranulocytic angina. It may be the patients will not manifest the angina.

It had been the plan of Dr. Taylor and myself to inject this blood into chickens, following the work of ————, who has shown that by injecting the filtrate of the blood he has been able to produce myeloid leukemia. In some chickens he gets a true myeloid leukemia, in others pernicious anemia.

I have recently seen a case, a man sixty-two years old, with acute lymphatic leukemia, proved definitely. We injected blood from this patient into two roosters, one of which died after four months; the other developed pernicious anemia. Now, what the explanation is of what we found is something I can not say. There is no conclusion to be reached from that, because our experimental data are too few.

Dr. N. A. Fox, Stokesdale: Such cases as have been presented are sufficiently rare to demand much study, and in five years' general practice I have struck just one case. It is different from the case that has been presented in that it happened in a baby of eleven months, like it in that it ended fatally. It was extremely acute, much more acute than this. The history is as follows: The child seemed to have an acute coryza or cold, and the case was treated as such for a few days but did not improve. The reason we thought it had that was because of the interference to breathing through its nose, which later, of course, proved to be marked enlargement of adenoid and tonsillar tissues. At the first examination the baby was shown to be extremely anemic; the hemoglobin turned out to be 35 or 40 per cent. The tonsillar tissue visible was extremely pale and had a gelatinous appearance. The cervical glands were enlarged. The ears showed no evidence of otitis. This led to the examination of the other glands available, the axillary and inguinal, which were all enlarged. To make a brief report, the blood count showed 90,000 white cells, of a predominating myelogenous type. The baby declined very rapidly and died in less than three weeks from the time it was first seen, the anemia apparently increasing. Another thing that was very noticeable was the change in the gums. For two or three days before the child died the conjunctivae, as well as the gums, exuded a sanguineous fluid. No pneumonia resulted, as might have been expected, in the child, but there was considerable pulmonary edema.

Dr. F. R. Taylor, closing the discussion: I am very glad this discussion has come out. As I said, and Dr. Davis said, I am very sorry we could not get an autopsy, but, frankly, I am sorry I could not get an autopsy chiefly because I think that spleen would have

been very interesting and spectacular and might have fixed the picture in our minds. I do not think the autopsy would have helped in diagnosis, because it was already pretty well established, with that big spleen and leukemic retinitis. Indeed, there was no particular difficulty about the diagnosis, but it would have been interesting to see the spleen.

As to Addison's disease, I do not think the bronzing would have been limited to the face; we would expect to have seen it around the elbows and in other parts of the body. Moreover, Addison's disease has a darker type of bronzing. This patient had a more yellow color than I have ever seen in Addison's disease.

Dr. Fox has described a very interesting case of what is, even in its usual type, a rare disease—acute leukemia. The whole conception of leukemia has changed in recent years. When most of us were in school we were taught there were only three types of leukemia: acute lymphatic leukemia, chronic lymphatic leukemia, and chronic myeloid leukemia. That is no longer believed to be the whole truth. Most authorities now recognize that we have more or less mixed types in the acute leukemias and usually cannot separate them sharply. Furthermore, it used to be denied that there was such a thing as an acute myeloid leukemia, but the article on that subject in the Oxford Medicine now comes out with the statement that it is probably more common than acute lymphatic. The last edition of Osler's Practice emphatically denies this, so we are still "up in the air." Certainly, the acute and subacute types have many of the earmarks of infection—sudden onset, chills, sweats, fever, etc.

UNDULANT FEVER—A MEDICAL, ECONOMICAL AND PUBLIC HEALTH PROBLEM

C. F. Strosnider, M.D., Goldsboro

Undulant fever includes Malta fever and all other febrile disturbances caused by infection with a member of the bacterial germs, Brucella.

It has been 24 years since Craig reported the first case of Malta fever in the United States. At that time fevers were so prevalent that the newly reported stranger was soon forgotten and remained so until Ferenbaugh and Gentry recognized the disease in the goat raising sections of Texas. In 1886, Bruce, in Malta, isolated from man Brucella melitensis, causing undulant fever; it was not until 1905 that it was discovered that goats were hosts of the infecting organisms. In 1918 Evans called attention to the fact that the organism causing Malta fever was practically identical with that causing infectious abortion in cattle. Keefer, in 1924, reported a case of Malta fever which was proved by positive blood culture to be due to the abortus organism. Since 1926, each year brings an increasing literature and a large number of case reports.

We have no reliable statistics as to the amount of Undulant fever in the United States. Laboratory workers have been conduct-

ing serological surveys by applying the agglutination test, using Brucelli abortus as antigen, to serums submitted for Wassermann or Widal tests. Our State Laboratory has been testing all specimens of blood submitted for the Widal test. Hasseltine reports that Hardy collected information up to January, 1929, as follows:

In 1928, 40 states reported 560 positive results; in 1927, 18 states reported 194 positive; in 1926, 7 states reported 34 positive. 300 cases have been reported in the literature since 1927.

Drs. Hardy and Hasseltine studied 442 cases in the year 1929, which they have divided into three groups as follows:

Group One—The milk group. 198 cases.

Group Two—The farm group. 200 cases.

Group Three—The meat group. 44 cases.

Age: Thirteen cases were children under 10 years of age. All in this group had no livestock contact. The decade from 35 to 44 years had the greatest number of cases, 118; the age group between 20 and 50 furnished 296 cases, or 67%. (The reproduction period.)

Prevalence: In 1929 the disease was recognized in every state of the union. Simpson collected a total of 1,305 cases in the United States. The year 1929 is the first year to show a seasonal distribution, the number of reported cases increasing up to September, after which there was a sharp drop. However, it will take several years to verify this observation.

Causative Agent: Hardy reports that cultural studies in his Iowa cases had yielded 49 strains of Brucella in 48 patients—35 of these have been determined to be the Porsine variety and 14 have proven to be the Bovine strain. From one patient, both the porcine and the bovine strain were isolated.

Modes of Infection: Hasseltine found that dropping Brucella organisms into the conjunctiva sac of animals gives rise to infection as readily as by feeding the cultures. In Waycross, Ga., Hasseltine found that in 8 out of 9 investigated cases occurring in 1929 the patients had used raw milk from one dairy.

Animals concerned: The animals concerned in the spread of undulant fever are the goat, the cow and the hog—while other animals, such as the horse, chicken, dog, cat, rabbit and rat may suffer from the infection, yet they appear to have no concern in disseminating the disease.

Contagious Abortion of Cattle: Contagious abortion of cattle is a serious economic problem with which the cattlemen have to contend. It exists in every locality where beef cattle as well as dairy cattle are bred. In Illinois a preliminary survey suggests that one in every five cases in the state harbors or has suffered from Brucella Bang. Of 55 different herds examined by the Illinois Experiment Station, in co-operation with breeders and veterinarians, 43 or 78.2% were found infected. Some herds showed 60 to 70% infected with about 10% the average for all cattle. The total estimated loss in Illinois herds in 1928 was five million dollars.

Diagnosis of Brucella Bang infection in cattle is accomplished by means of agglutination tests on blood serum.

Contagious Abortion in Hogs: Is quite widespread over the United States, but most prevalent in the middle western states. In Illinois the first serious outbreak was in 1922. This infection is a matter of serious concern to the hog raising industry, while its invasive character to man makes it a public health problem of growing consequence. Diagnosis of Brucella infection in hogs is accomplished by means of the agglutination test.

Poultry: The domestic fowl may become infected by following the diseased cow or hog. The Brucella organism is said to locate in the ovaries and may be found in the eggs laid by such fowls. Fortunately for man, the egg laying period of the diseased hen is short.

Undulant Fever in Man: For your information I am reporting two of the three cases diagnosed in Goldsboro, N. C., and one case diagnosed in Edenton, N. C.:

Case No. 1. Mrs. Y.; white; married; occupation, homemaker; age 47. Lived at her present address all of her life.

For the past five years has had periods of weakness, anorexia, sweats and fever for months at a time. The cause of said fever had not been diagnosed.

On November 6, 1930, she took to her bed with symptoms similar to those existing for two weeks prior to her confinement to her bed.

She stated that she had been taking three glasses of raw milk daily from a dairy selling Grade A milk.

She states that she ate beef, mutton, pork and sausage; that she handled some of the meat coming to the home.

There was no livestock contact.

Menses normal, and up to 5 years ago the duration was 5 days, but the time and amount of flow has gradually increased during the past five years, until at present her periods last ten days.

I saw this case November 6, 1930, when she stated that she had been having chilly sensations several times per day for two weeks prior to this date; that she had been feeling very tired; that she had been having sweats for several days; that she had no appetite; was constipated, and that digestion was very poor.

On November 22, a blood smear was negative for malaria fever; that a leucopaenia existed; hgb was 60%, and the mononuclears were increased. Her joints did not cause her trouble at anytime. By November 20 her temperature had gradually risen to 102.1 in the morning, and 103F in the afternoon. The temperature would rise and fall several times during the day. The temperature would be sweated off to the degree of 99 each time. Nausea was present at intervals. At this stage pus was found in the urine and tenderness over the right kidney, and, with the presence of dull headache daily, the patient was admitted to the Goldsboro Hospital for cystoscopic study and X-ray study of the chest, and a complete blood study, which revealed the following:

Dr. Donnell Cobb reports as follows on the cystoscopic and blood work: The urethra and bladder were negative except for a slight degree of inflammation of the trigone. Each ureteral meatus appeared normal. A No. 6 catheter was passed easily up to each kidney pelvis. Urine from bladder: a moderate amount of pus cells. Urine from left kidney: negative. Urine from right

kidney: a moderate amount of pus cells. X-ray: Bilateral pyclouretegram shows no abnormality.

Opinion: Mild degree of trigonitis and right pyelitis. Of the chest at the time of this examination stereoscopic X-ray films showed no abnormality.

Blood Count: Hgb, 60%; R. B. C., 3,120,000; Leukocytes, 9,600; Widal reaction,negative; culture for typhoid, negative; undulant fever agglutination, 1:320-1:640".

The patient remained in the hospital for about one week and then returned to her home. The temperature persisted from November 6 to February 1, 1931. Considerable weight was lost during this illness. The heavy sweats several times during the night were the most devitalizing of the entire experience.

The patient had gained some weight when I examined her on February 17 in my office. At that time she weighed 103½ pounds. Her Hgb was 65%. The macroscopic agglutination test for undulant fever was positive, 1:160 four plus; 1-320 two plus.

Case No. 2—Courtesy of Dr. L. P. Williams, Edenton, N. C.—Mr. A; age 35 years; farmer; born and always lived in his present community. Has been sick about 6 or 8 weeks, but did not consult me until one week ago, complaining of loss of weight, slight chills, night sweats, some aching, and general weakness. Unable to carry on his regular work. Temperature has been ranging from 99 in the morning to 101 or 102 in the evening since I have been observing him. He is rather weak now, confined to his bed and has not shown any improvement as yet. Have not given any vaccine as yet, but am going to try some as soon as I can get it. This patient has never drunk much milk. Does not eat much cheese, but does eat the average amount of butter, which he buys from the store. Has had no milk from his farm for family use in over 12 months. He has no goats on his farm. He has no adenitis; his spleen is not felt; his liver is slightly enlarged and tender. Blood work: WBC, 7,000; RBC, 4,500,000; smears are negative for malaria.

Case No. 3—Courtesy of Dr. William Hopton Smith, Goldsboro, N. C.—Mr. J. K.; age 19 years; single; clerk.

Chief Complaints: When seen on January 31, 1931, patient complained of weakness, headache, electric shocks when walking that went through body, and pain and soreness left shoulder and neck.

Present Condition: Was feeling tired at Christmas time, but thought it was due to overwork. After getting some rest after the Christmas rush was over got to feeling all right. Eight days, January 23, 1931, before I saw him. January 31, 1931, he began to feel weak. Thinks he had some fever. Had some pain in left shoulder and a pounding pain in head. Had a little cough, which he thought was due to chronic sinus trouble, causing a nasal catarrh which he has had for two years. When he took a step a sensation as a shock went through body. He said he had similar condition when he had malaria five or six years ago. All during the time his appetite was good. No nausea; bowels open. Slept well, and every morning about six had a sweat. First took temperature January 28. About noon was 100, next day at night went to 102. After that it varied from normal in morning to 100 at noon and 101 at night. Went to work on February 6; had fever for about 3 days afterwards. Has been taking temperature all of time until last two days, and has not had

fever for about ten or twelve days. Felt weak at first, but now feels as well as ever. Last spring (1930, April or May) lost appetite and weight fell from 150 to 135. This condition lasted two or three weeks. Never gained this weight back. During the summer felt the heat. In the fall felt fine. Has taken milk from —— dairy, one pint a day, for four or five months. From L. S., Pikeville, from one quart to one-half gallon once per week.

Past Medical Condition: Flu in 1918; malaria in 1925; sinus operation two years ago.

Family History: Father and mother living and well. One sister died of auto accident February 23, 1931.

Examination: On January 31, showed slight redness of throat, coating of tongue, few scattered rales, normal heart sounds; abdomen was negative as to tenderness or enlargement of liver and spleen.

Laboratory Examinations: Complete blood: WBC, 9,100; RBC, 4,700,000; Hgb, 85%. Diff: Polys, 54%; Lymphs, 39%; trans, 2%; mono, 2%; bas, 3%.

Blood agglutination test for typhoid and para typhoid, neg.

Wassermann test, neg. for undulant fever 1:320 four plus; 1:640 two plus.

You have noted that two of these cases are of the medium severe type, whereas the other one is of the ambulatory type.

Port of Entry of Causative Agent:

In the state of our present knowledge, we can consider two ports of entry of the Bacillus Abortus into man; namely, the alimentary tract and the skin. The Bacillus Abortus is eliminated from the infected cow via the milk—the drinking of unpasteurized milk containing this micro organism—has been responsible for many cases of undulant fever. Children drink more milk than the adult age group of our population, but the incidence of Undulant fever among children is less than any other age group. The highest incidence of the disease is among people between 20 and 50 years of age. Hardy analyzed 222 cases of Undulant fever in Iowa and found that Undulant fever in this country is a rural disease. There was in that series three times as many cases per unit population in the country as in the cities, the small towns ranging between the two. Hardy, Hudson and Jordan have shown that the skin of guinea pigs is a better port of entry for hog and cow strains of Bacilli Abortus than the alimentary tract—there was no local inflammatory reaction at the point of entry of these bacteria in these experiments. Hardy suggests that the skin is an important port of entry in animals, and states that the ingestion of the Bacillus Abortus does not satisfactorily explain the epidemiology in domestic animals infected with Bacillus Abortus.

Incubation Period:

The incubation period is usually about two weeks, but may be shorter or longer, according to the amount and virulence of the infecting dose, and the individual susceptibility or resistance of the patient.

Onset:

This is determined by the severity of the symptoms.

One type is described by a sudden onset characterized by rigors, chills with profuse sweating, muscular and joint pains, loss of weight and a characteristic, continued, persistent and undulating fever curve. 2. A more gradual and insidious onset in the other type, and the most frequently found—the patients have undulant temperature curve, which are the most constant. Chills are frequently as constant as the temperature—later they occur less frequently and disappear first. They vary in severity from a chilliness to a severe rigor—recurrences at the same time of day, followed by the elevation of temperature and sweats, suggest malaria, tuberculosis, influenza, rheumatic fever, acute uncinariasis, and septic infections.

Sweats: They may be either mild or severe, independent of chills and usually have an offensive odor. Later, in the case the patient complains of their weakening effects.

Headache: In the early stage is constant and quite annoying—it is worse in the occipital region and upper portion of the back. It has a tendency to periodicity, appearing at the same time from day to day—late in the disease it disappears.

Arthralgia: Is fairly common and appears early in the disease, as was the case in Dr. Wm. Smith's patient. Arthritis may develop early or late in the disease.

Neuritis: Like arthritis, may occur at any stage of the disease, or the only symptom of the disease—an unusual type of discomfort is that described as eyeache. Persistent or recurring sciatica is frequently due to this infection—other nervous manifastations are frequently present—asthenia is an early and constant symptom—depression, irritability or anxiety neurosis are frequent variations in the mental condition of the patient. However, in the presence of high fever there is never the dullness or apathy such as commonly characterizes the typhoid state. Insomnia is a troublesome symptom.

Anorexia is the first symptom noted—nausea and vomiting occur early. Inability to digest food is quite persistent in the likeness of gaseous distention—this being more marked in the moderately severe type of cases who have had the disease for a period of months or years. This discomfort was rather persisting in my case. Constipation is present and requires the attending physicians daily attention. Tenderness over the gallbladder or kidney region may be complained of—this was present in one of my cases—and pus was found in the urine of two cases. Pharyngitis and a mild bronchitis usually appear early and persist for about one month, more or less. The pulse rate is usually increased above that which the temperature would suggest. Adenitis was not present in either of my cases, nor the courtesy cases herein reported.

Diagnosis: The clinical picture is one of septicaemia and generalized infection. The blood picture usually shows the following: The WBC is usually leucopaenic; the differential usually shows a decrease in the pollys with a corresponding increase in the mononuclears (the RBC is usually decreased markedly) suggesting malaria—the red blood cells have the usual secondary anaemic appearance. The blood serum should be tested for agglutination of Bru-

cellus Abortus. This being the same as the Widal test, except the Brucellus Abortus is used instead of the Bacillus Typhosis for the test. If the serum is diluted over 1:80 with normal salt solution and still agglutinates the Bacillus Abortus, the reaction is considered diagnostic along with the clinical picture of the disease. Dr. C. A. Shore states "That in all cases of partial agglutination—that is, below 1:80—we have tried to get later specimens. We have considered nothing below 1:80 as positive." The Bacillus Abortus can be cultivated from the blood during the acute febrile stage—the same can be done from the urine during the acute stage, but the urine does not yield as large a percentage of positive cultures as the blood. The agglutination reaction is said to appear after the third week of the illness. However, the Bacillus Abortus may be grown from the blood specimen before this time. The skin test of Giordano is said to be of value. This consists of suspension of the Bacillus Abortus killed by heat—the dose of from .05 to .2 c. c. injected intradermally. In patients with Undulant fever there is said to be an area of hyperemia developing in from 12 to 48 hours after injection. This test is said to be negative when performed upon normal subjects.

Treatment: The treatment is supportive and symptomatic—no specific method of treatment has been approved.

Prevention: Prevention is the method of choice—the skin may be the port of entry in some cases. Hence proper precautions in the handling of aborting animals and the dead foetus and other discharges should be carried out by people in contact with such sources of infection.

Public Health: The mode of transfer of the organism from the infected animal to man is a matter of great importance. Dr. Hardy of Iowa states that: "In 25 cases in which there had been no direct contact with live stock, the epiodemiologic evidence suggests that the organism was transmitted through raw milk or cream. That Undulant fever among packing house workers is an occupational disease on account of the transfer of said disease from handling of meats."

The fact that British soldiers and sailors seemed to get Malta fever from goat's milk has probably led us to believe that most Undulant fever is contracted through milk. However, as stated by Dr. Hardy, occupation also plays an important part. For instance, a farmer may have infectious abortion present in his cows and hogs; he drinks milk from infected cows and he tends the infected herds. In this instance we have a twofold source of infection. In Iowa, Dr. Hardy found that in the rural sections the fever attacks about five males to one female—proving that it is an occupational disease. Therefore, in getting our history, occupation should not be overlooked. When occupation does not offer a satisfactory clue you will find that unpasteurized milk or cream has been used within two weeks prior to the onset of the disease.

The ideal method of prevention of the disease is the elimination of the infected animals from herds, a goal which Veterinarians and the Department of Agriculture hope can be reached by separation

of infected from non-infected herds, as segregated infected animals may become free from infection within five years. In the meantime what shall we do to protect the health of our community? We can require the pasteurization of milk in urban centers; we can educate the rural population who might be exposed to the infection as a result of their occupation, the danger to which they are subjected; all meats should be well cooked. Amoss has reported the recovery of Brucella Abortus from the stools of patients suffering from the infection. Therefore, we recognize the possibility that the disease may be dessiminated through contact infection.

The disease has not been recognized very frequently in children below the age of twelve years. Is this due to the symptoms manifesting themselves differently in childhood? Is the child less susceptible? Further study and observation is necessary to answer these questions satisfactorily.

As to milk-borne infection, the first essential is healthy cows. A milk that has a low bacterial count may be heavily contaminated with the organism of Undulant fever. As the organism has its source in the cow's udder, no amount of cleanliness, inspection, sterilization of utensils, etc., will be of any help unless serological tests of the animals be included. Pasteurization of the milk renders it safe and takes care not only of Undulant fever, but of all other communicable diseases transmitted by milk. Therefore, pasteurization must be our our sheet anchor in the prevention of milk-borne Undulant fever for at least a number of years. Mohler, Chief of the Animal Industry, says: "Infectious Abortion is so widespread and the milk of so many animals is infected that the main dependence for protection against whatever danger there may be from Bacillus Abortus in milk must be placed in pasteurization, which, if properly done, will make the milk safe until the dairyman can eradicate the disease from their herds."

Undulant fever in Ware County, Georgia, year of 1928:

Undulant fever was first recognized in Ware County, Georgia, in 1928. During that year Dr. Atwood reports eleven cases, six being in the city of Waycross and five cases outside of the city limits. All of these cases used raw milk from infected dairy herds. On February 4, 1930, the city of Waycross authorities amended the standard milk ordinance so that after March 1, 1930, only Grade A pasteurized milk shall be sold, or offered for sale, for consumption in the city. Dr. Atwood advised me on March 5, 1931, as follows: "We have not had any Undulant fever since the above report was made—June 13, 1930." This report is most valuable for the health authorities of North Carolina to study with a view of protecting the raw milk drinking public from Undulant fever infection.

Note on treatment of Case No. 1, with Brucella Immugen, P. D. & Co., from February 23, 1931, to April 15, 1931. Before treatment began the agglutination test was complete in 1:160 and partial in 1:320. April 15, 1931, is complete in 1:80 and partial in 1:160 and 1:320. The patient has gained 4½ pounds, feels better than she has in five years. Can be out of bed and work

most of the day. I have been giving the immugen as often as reactions subside. A hard mass develops with redness covering area the size of silver dollar, which persists for three or more days and at times being accompanied by general aching and weakness; and every second day the temperature rises to 99 degrees. In six weeks I have worked the patient up to seven drops of the immugen per dose. The indications are that this immugen will cure this chronic case of Undulant fever. This patient has been drinking three glasses of raw milk daily for some years from a herd which contains twelve head of Abortus reactors. Case No. 3 took milk from the same herd as did this case.

SUMMARY

Q. How is Undulant fever contracted?

A. By drinking milk from cows affected with the organism which causes contagious abortion, especially if the cows have been in contact with hogs infected with the same organism; through the unbroken or abraded skin; by contact with animals or carcasses infected with the disease, or by contact with a case of the disease.

Q. What length of time usually elapses between infection and the development of symptoms?

A. The incubation period is given as from 6 to 16 days, but it is probable that exposure for a much longer time is necessary in many instances on account of individual resistance.

Q. Does Undulant fever take on different types?

A. Yes, it may be acute, subacute, malignant, or chronic. Thus some cases are protracted, others not so ill but that they can be about. Its duration ranging from one to many months.

Q. Who are most subject to the infection?

A. Persons who work around livestock, in abbatoirs, slaughter houses, packing houses, with hides or wool; those who drink unpasteurized milk, cream or butter from cows or goats infected with Contagious Abortion, and attendants upon persons ill with the disease.

Q. Is Undulant fever dangerous to life?

A. Yes, from two to two and one-half percent of the cases are fatal. Relapses are frequent and the disease may be intermittently present for months or even years as in case No. 1 and another case not included in this observation and report.

Q. Is Undulant fever prevalent?

A. Yes, it has been found in every state in the union. Our State Laboratory of Hygiene has been finding the disease since the year 1929. The number of cases reported in North Carolina are increasing annually. Dr. C. A. Shore, Director of the North Carolina Laboratory of Hygiene, informs me that his department had made up to February 18, 1931, 2,303 microscopic agglutinations, and 569 macroscopic agglutinations with the following results: Positive cases, in 1929, 2 macroscopic; 1930, 7 macroscopic; 1931, 2 macroscopic. 1930 6 cases partial to 1:80 macroscopic agglutination; 1931, 1 case partial to 1:80 macroscopic agglutination. Microscopic undulant agglutinations suggestive but not confirmed: 1929, 14 cases; 1930, 4 cases; 1931, 4 cases.

Q. What can be done to prevent infection with Undulant fever?

A. Consume only pasteurized milk. Farmers who have infected cows should use every precaution to keep their cattle and hogs separated. Thoroughly disinfect all discharges from a patient sick with Undulant fever.

Q. Is there a vaccine for prevention and treatment of Undulant fever?

A. Yes, for treatment, but as yet no vaccine has proven definitely successful.

The rapidly increasing number of reported cases in the United States indicates the seriousness of this disease as a public health problem.

Note: The Wayne County Board of Health, in conjunction with the Veterinary Division of the N. C. Agricultural Department, have recently made an examination of the dairy herds of Wayne County, with the following results reported: A total of 301 cows were examined by agglutination tests. 97 were found to be reactors. 22 were found to be suspicious. 13 dairies were represented—4 small dairies had no reactors. The other nine dairies had from one to 23 reactors. The economic situation is brought forcibly to our attention when we see the situation from the dairymens' standpoint. What solution have we to offer these dairymen and our health departments in their position of protecting the people with a sufficient supply of wholesome milk; Pasteurization is the only solution for all concerned.

There appears to be no etiological factor other than the ingestion of raw milk and unpasteurized dairy products in the cases herein reported.

Acknowledgments: I wish to acknowledge my indebtedness to Dr. C. A. Shore, Director North Carolina State Laboratory of Hygiene, and his co-workers, for valuable information furnished from their records; to the Iowa and Illinois State Health Officers for information furnished from their records; to Dr. George Atwood, Commissioner of Health of Ware County, Georgia; to D. H. E. Hasseltine, Surgeon, United States Public Health Service, for information furnished by private correspondence and reports of special investigations made in Ware County, Ga., and elsewhere in the United States; to Drs. W. H. Smith, of Goldsboro, and Dr. L. P. Williams of Edenton, N. C., for case histories included above; to Parke Davis & Co., for experimental purposes, a supply of Brucella Immugen; to Dr. Donnell Cobb, Goldsboro, N. C., for cyctoscopic report and blood forwarded to Raleigh for me from which original diagnosis was made in case herein reported; to my patients who are co-operating so freely in the study and observation of their cases; to Dr. F. M. Register, Health Officer, Goldsboro, N. C., for statistical data pertaining to the number of dairy cows examined in Wayne County in 1931.

DISCUSSION

THE CHAIRMAN: The paper of Dr. Strosnider is now open for discussion.

Dr. William Allan, Charlotte: Dr. Strosnider has brought to our attention, in a very excellent review of this situation, what is already a serious problem and may become a much more serious problem. Malta fever is a very embarrassing situation to me for three reasons. I can not make a diagnosis half the time. The agglutination test seems to be very variable, and I find it very difficult to get positive blood cultures. As an individual practitioner, I can not go into the work as Dr. Amoss has done here. The second bad thing about this disease is that when you tell people what the children have, they want to know how long they are going to be sick. It is just as Amos and Andy say, "Why bring that up?" You can not guess within a year how long they will be sick. The third bad thing about Malta fever is that they get along just as well without a doctor as with one. I have known two people with Malta fever just to fire the doctor—have him come back in two months to see how they are getting along, instead of the next day. There is very little nourishment for the medical profession in Malta fever.

I want to say that while Malta fever may be largely a milk-borne infection, that does not seem to me to be demonstrated. The public-health people say freely that you can not do anything with the herds, as half the cattle have it, and you can not kill out half the herds. Until it is demonstrated that it is a milk-borne infection, they hesitate to enforce pasteurization. So there does not seem to be much to be done about it.

Dr. F. R. Taylor, High Point: Dr. A. C. Jones, City Veterinarian of High Point, tells me that very nearly one hundred per cent of the dairy herds in North Carolina are infected (at least, the herds of any considerable size), yet when routine agglutinations were done in large numbers we get these reports in two cases, one case, etc.—in work dealing with thousands of bloods, with great numbers of people drinking raw milk. Yet, with large numbers of farmers and others, handling livestock, where pasteurized milk is exclusively used there seems to be no undulant fever. It is a very peculiar thing.

One other point as to treatment. I have had no experience with this, but I am probably going to take a shot with it in the next case I get, and that is neutral acriflavine put up in ampoules for use intravenously.

Dr. Josephine Evans, who has done a great deal of work, says the ordinary agglutinins are of no value and that only cross agglutinations will differentiate the various strains of brucella. I do not even know what cross agglutination is!

It is such a complex thing that I am doubtful about the vaccines being very specific.

BUSINESS SESSION

On motion of Dr. P. P. McCain, Dr. William H. Smith, Goldsboro, was elected chairman of the section for the coming year.

On motion of Dr. C. F. Strosnider, a vote of thanks was given to the Chairman, Dr. Dewar, for the program he had prepared for this meeting.

The Section then adjourned *sine die.*

SECTION ON SURGERY

Dr. Deryl Hart, Durham, *Chairman*

The Chairman, Dr. Deryl Hart, called the Section to order in the amphitheatre of Duke University Medical School at 2 P. M., Tuesday, April 21.

The first paper, "Avertin as a Basic Anesthetic," is by Dr. Foy Roberson, Durham.

AVERTIN AS A BASAL ANESTHETIC

Dr. Foy Roberson, Durham

It is now about 85 years since ether and gas first came into use as general anesthetics in surgery, thereby making it possible to perform major operations without pain to the patient. Even yet it cannot be said that the perfect anesthetic has been discovered. It is true that at times the various anesthetics may act perfectly so far as comfort and safety to the patient is concerned and convenience to the surgeon; however, we all know that all anesthetics carry a certain amount of danger at times, even though the operation may be carried out with the greatest possible convenience to the surgeon. On the other hand any of the anesthetics may be entirely safe so far as the patient is concerned and yet not be satisfactory to the surgeon as to relaxation. Again, we know that ether and some of the gasses are explosive and on that account are to a certain degree hazardous. We also know that chloroform, while being comparatively pleasant to the patient and produces very good relaxation, yet its remote and even immediate effects may be most serious.

Recently spinal anesthesia has come into vogue; and while it produces marvelous relaxation for the comfort of the surgeon, it carries with it a degree of danger to the patient, and the technic of administration is not always simple.

Crile was among the first to emphasize the dangers of general anesthesia and he used combinations of gas anesthesia, morphine, hyocine hypodermically with local infiltration at the operative site to produce what he called anoci-association. More recently Bartlett of St. Louis has suggested the use of the barbituric acid preparation such as veronal, allonal, luminal, etc., to be used as basic anesthetics to be supplemented by local or general anesthesia, the idea being to produce a state of profound somolence so that less general anesthetic may be used. He has found that his morbidity and mortality has been less and the mental anguish to his patients incident to anesthesia and operation has been markedly reduced.

(c) "Avertin or tribrom ethyl alcohol has recently been introduced in Germany by Echstein. It first came into use as a remedy for whooping cough, but it was so unpalatable that it was given by rectum. Eichholtz credits Willstater and Duisberg with having first prepared the substance from Bromal in 1923, classifying it as E-107.

It was introduced clinically as an anesthetic by Eichholtz and Butzengeiger in 1926. The first administration to a human being took place March 27th, 1926, at St. Marienheim in Eberfeld, Germany. It was given the trade name of Avertin."

At first it was used in rather large doses; as much as 150 milligrams per kilo of body weight, with the idea of producing general surgical anesthesia. However, it was found that the margin of safety between the general anesthetic dose and the lethal dose was too narrow and it is now in general use as a basal anesthetic to be supplemented by some general anesthetic agent such as nitrous oxide, ethylen or ether, and it is the use of avertin as a basic anesthetic that we have in mind in preparing this paper. It is the belief of the essayist that there is a very definite need for such an anesthetic; it certainly is much more pleasant to the patient, requires much less inhalation anesthesia and greatly reduces morbidity and mortality.

We have used avertin in about 200 cases, never using more than 90 milligrams per kilo of body weight, nor less than 80, and we have yet to experience the slightest sign of any harm or injury to the patient. On the other hand, it has taken practically all of the disagreeable elements away from major operations. The anesthetic is administered in the patient's room and they very seldom know more than that an enema is being given. They know nothing of the trip to the operating room, nausea and vomiting is markedly decreased, post-operative pains are much less severe, and the patient awakens after two or three hours of pleasant sleep without even knowing that an operation has been performed. What a contrast to the anxiety of going to the operating room wide awake and coming in contact with all the strange surroundings that exaggerate their fear and anxiety. They are relieved of the disagreeable induction of inhalation anesthesia; much less of the anesthetic agent is required, relaxation is better, the operation much more easily done and the patient leaves the operating room in far better condition than when general inhalation anesthetic is administered without the use of avertin. Personally, I believe too little attention is paid to the anesthetic in surgery. I believe that next to antisepsis that the anesthetic is the most important factor in connection with the success or failure of the operation. It certainly is of tremendous significance so far as the patients psychic element is concerned. So often a patient will say they do not dread an operation, but they abhor the idea of having to be put to sleep, especially if they have ever gone through the experience before. Avertin really makes operation a pleasure for the patient when used as a basal anesthetic, if such is possible.

We realize that our series of cases is far too small to be conclusive, yet it seems to be about the same experience as other men are having, judging from the literature appearing on the subject. As time goes on it may be that experience will justify larger doses with safety, but our opinion now is that it should be used only as a basal anesthetic until more is learned of the agent.

Individuals vary greatly as to their reaction to avertin. Children require relatively more, nervous individuals require more. Fat people

and the aged require less. Two or three of our patients did not go to sleep with as much as 90 milligrams per kilo. The aged often do not require any general inhalation anesthetic after having advertin administered. Recently a woman 74 years of age was admitted with strangulated femoral hernia. Prior to admission to the hospital she was given a hypodermic of morphine and hyoscine. Upon admission she was in a state of delirium from the hyoscine and had to be restrained in bed. She was immediately prepared for operation and given 80 milligrams per kilo by rectum. She immediately went into a quiet sleep, the operation was completed without any further anesthetic, not even local. She came off the table in splendid condition and from the combination of morphine, hyoscine and avertin slept for several hours after the operation and awakened refreshed, free of pain and nausea and happy. Spinal anesthesia would have been difficult to administer in this case and might have been dangerous. Local anesthesia would have been out of the question on account of the patient's delirium, general inhalation anesthesia would have been hazardous on account of her age and general condition. Avertin converted a serious situation into a pleasant dream.

A man of 60, weighing about 250 pounds, with a strangulated umbilical hernia of 36 hours duration, was admitted to the hospital vomiting fecal material. He had a hemiplegia of two or three years duration, had not been able to lie down for many months on account of his heart. We knew that without operation he was doomed and we thought that with operation he would meet the same fate. He was given 80 milligrams per kilo of avertin; sleep followed immediately. He was then able to lie down. A very small amount of ether was administered during the operation. The operation was completed with ease and the patient returned to his bed in splendid condition. He made a good recovery. Formerly such patients required so much ether that they frequently did not survive the operation.

Fatalities with excessive doses have been reported. We do not know of any with doses from 80 to 90 milligrams. They possibly have occurred. As stated above, we have had no unpleasant experiences in any of our own series. On the other hand it has served to take the horror away from operations, especially is this true in the case of children. We shall not go into the technic of administration, it is no doubt familiar to all of you. Some men advise against preliminary medication. We often give veronal the night before and pantopon and atropin the morning of the operation, then follow with the avertin.

DISCUSSION

Dr. Donnell Cobb, Goldsboro: Dr. Roberson speaks from a personal experience with Avertin that has been sufficiently large to make his opinions convincing. Its two chief advantages that he points out are, as they should be, on the side of the patient; first, a lessening of the disagreeableness of being operated on and second, increased safety for the patient by making it possible to use a smaller amount of inhalation anaesthetic.

Just as the growth of the surgical specialties resulted in a maze of new techniques and improved instruments, so the comparatively recent development and popularization of anaesthesia as a specialty has been accompanied by the introduction of a baffling number of new anaesthetic agents. The surgical literature of the past year contains more articles on anaesthesia than the several preceding years, and yet it is extremely difficult to properly evaluate all of them.

The original idea that these new substances were to serve as the sole anaesthetic agent has now been almost universally abandoned. Dr. Royster has referred to them as "semi-anaesthetics"; Dr. Lundy, of the Mayo Clinic, uses them in an effort to secure "balanced anaesthesia," and our essayist, Dr. Roberson, places Avertin in its proper place when he refers to it as a "basic anaesthetic."

For the most part, Avertin should be used only as an auxilliary agent in the induction of anaesthesia rather than as a substance to be relied upon for the production of full surgical anaesthesia. From the anaesthetist's point of view this is its chief merit. The patient has much more cause to welcome it. The anaesthetic is given in the ward or the patient's room without fuss and without the patient necessarily knowing that an anaesthetic is being given. Falling asleep is gradual and peaceful and the awakening usually equally so. Even though the narcosis obtained is very light the whole unpleasant business of being anaesthetized and of recovering is thus not only diminished in fact, but is minimized in retrospect. By such a method as Dr. Roberson has pointed out the "anosi association," the allaying of fear, as so ardently advocated by Dr. Crile can now be universally employed and enjoyed without elaborate equipment, without increased personnel and without the expenditure of much time.

In so far as obtaining full surgical anaesthesia my experience with Avertin, as with Sodium Amytal given intravenously, has not been gratifying. There was always evidence of sensation and moving about on the table when the skin incision was made and muscular relaxation was not satisfactory. When combined with a small amount of inhalation anaesthetic the results have been excellent. It requires an intelligent anaesthetist to properly control the superimposed anaesthesia. Avertin causes the pupils to remain contracted during the period of anaesthesia. Its use in conjunction with local anaesthesia has not been entirely satisfactory, as coöperation on the part of the patient was, of course, destroyed.

In my experience the use of Avertin has certainly lessened the occurrence of post-operative nausea and vomiting and the post-operative reaction has been gradual and peaceful.

The preparation and administration of Avertin is comparatively simple. Although instances of rectal ulceration and diarrhoea have been reported following its use due to over heating and the eliberation of the aldehyde I have noticed no rectal or anal irritation in any of the cases in which I have used it. The easy test of adding a few drops of congo red to determine the possible presence of the aldehyde is obligatory before placing the solution in the rectum.

As with every other anaesthetic agent deaths have been reported following its use. According to Edwards it is excreted almost entirely by the liver and kidneys. Killian and Graham call attention to the fact that the chemical structure of Avertin is very similar to that of chloroform and that it probably will be found to produce the same sort of late toxis effects in the liver and other organs. It decreases the alkali reserve of the blood, depresses the respiratory center and lowers blood pressure. All of which argues very strongly for using Avertin in smaller amounts and for securing hypnosis, light narcosis or only as a basic anaesthetic.

At this time I feel that these new anaesthetics, of which Avertin is one, present a real advance and fill a definite vacancy that has heretofore been felt chiefly by the patient.

The Chairman: Dr. R. K. Farrington of Thomasville.

Dr. R. K. Farrington: I may speak freely of avertin for I have just had a personal experience with it in two major operations. I took avertin and on those two operations I took two anesthetics. I experienced no sensation of nausea, no pain, no post-operative pain for something like 12 to 18 hours and was perfectly comfortable after the two operations. I was given a dose of 80 mg. per kilogram of body weight, which is the dose I have been using for the past six months. But the thing that impressed me most, is the lack of post-operative pain and post-operative nausea. If you want a nice anesthetic, try it on yourself—that is what I did. (Applause.)

The Chairman: Dr. E. T. Dickenson, Wilson.

Dr. Dickinson: I have used avertin in 45 operations about the throat and neck, without the least disappointment. It is stated in the literature, and I have found it true, that avertin is especially advantageous in the removal of tonsils.

My procedure in this is to first give the patient avertin and go off and wait 20 to 40 minutes, or 50 or 60, if you like, and return and have the patient inhale freely of ether for a few moments until he breathes rapidly, and then that anesthesia is capable of allowing the complete removal of the tonsils and adenoids. Should it not last through a longer operation than this, it is easy enough to have some attachment whereby the operator will not be interfered with; and again add a few inhalations, and proceed uninterrupted with the operation. (Applause.)

The Chairman: Dr. E. A. Sumner, of High Point, N. C., will speak to us now.

Dr. Sumner: I just want to say that I enjoyed the paper of Dr. Roberson's very much. We have recently concluded a series of 700 cases of avertin-anesthesia in surgical cases, with no ill effects or bad results that we have been able to determine. There are a few precautions, however, which we should take in preparing the solution and administering it. The water for preparing the solution should always be distilled because the congo red test will not be accurate with ordinary tap water, and at the time should not be above forty degrees centigrade as it may decompose the avertin into an irritating and toxic substance. It should always be given by a trained anesthetist or

surgeon and not left to the nurse or an inexperienced person. The rectal tube should be well lubricated and introduced with care so as not to irritate the rectum. It should be introduced about four inches into the rectum and the solution allowed to flow in by gravity, slowly. In this series of cases only eight expelled the solution before anesthesia resulted. We had one case who had slight rectal irritation and passed small amount of blood the next day. This, I think, was due to some enlarged hemorrhoids and not to the anesthetic itself. In twenty-one cases practically no effect was received even with 100 mgms. of avertin. I have been unable to determine the cause. Sixteen per cent of the cases obtained complete surgical anesthesia. In my opinion the dose administered was a little too large, as we only expected to get a basal anesthesia. Seventy to eighty mgms. per kilo body weight is probably the safest and most satisfactory dose in the majority of cases. Our average, in the seven hundred cases, was ninety, however. Even in very tiny doses as small as forty mgms. produces an analgesia and there was no excitement on induction with inhalation anesthetic and there was no memory of having gone to the operating room or of having taken an anesthetic.

THE CHAIRMAN: Dr. Foy Roberson will close the discussion.

DR. FOY ROBERSON: The only point I want to make is this—that while avertin is a great help, a wonderful agent, an adjunct to anesthesia, I would just like to warn you not to be too zealous about it and try to get general anesthesia from it, until we know more about it. Dr. Sumner brought out that he had some cases that did not get any anesthesia whatever. Personally, I think that is better to be desired than getting too much.

Dr. Boyden recently published a case of death from anesthesia in a 100 mg. dose and this patient died a respiratory death; and the heart, he stated in his report, continued to beat three or four hours and the patient probably did not breathe at all. So you see that it is not without danger.

My other suggestion is until we know more about it, let's increase the dose gradually. (Applause.)

ACUTE INTESTINAL OBSTRUCTION

W. H. SPRUNT, JR., M.D., Winston-Salem

There is probably no condition which the surgeon is called upon to treat that has graver possibilities than that of acute intestinal obstruction. This is shown by the fact that in spite of the vast amount of research work, correlated with clinical observation, the death rate from acute intestinal obstruction is still intolerably high. In 1888 Fitz of Boston collected a series of 295 cases with a mortality of 80%. In 1908 Scudder reported a series of 121 cases from the Massachusetts General Hospital with a mortality of 60%. In 1920 Richardson, reporting from the same hospital, reported a mortality of 41%. In 1929 Miller, of New Orleans, reported a series of 343 cases with a mortality of 60.9%. Miller is of the opinion that the

general mortality from this condition runs nearer sixty than thirty per cent.

Naturally, any condition presenting such a continued high mortality has aroused much interest, first as to why the mortality should be so high, and second as to the cause of death. A vast amount of experimental work has been done on this condition. While much of this work remains to be proven, certain facts are generally accepted at the present time, viz:

There are essentially two types of obstruction—obstruction without gangrene (simple obstruction), and obstruction with gangrene (strangulation).

In the cases of simple obstruction, it is now generally conceded that death results from a loss of chlorides, dehydration and finally starvation. Dehydration and loss of chlorides were thought at one time to be due to vomiting. It has since been proven to occur even where there is no vomiting. It is now thought that there is a great loss to the body both in chlorides and fluids from the enormous amount of fluid that collects in the obstructed gut that is not absorbed. There is probably an added loss associated with the protein destruction that takes place.

In cases of strangulation of the bowel we have a different story entirely. Here there is a production of toxin which is rapidly absorbed, and unless the condition is quickly relieved, death ensues. As to the origin of the toxin, investigators are not in accord. It is, however, generally agreed that there must be some damage to the wall of the bowel, before absorption of the toxin can take place. It has been repeatedly proven that the toxin is harmless in the normal intestine. Damage to the wall of the bowel may occur in different ways. The bowel may be so compressed by bands of adhesion as to cut off the circulation. Distention of the gut by the products of fermentation may cause enough pressure to produce necrosis, with leakage along the anti-mesenteric border.

A few years ago, Moore, an English surgeon, called attention to the similarity of the symptoms occurring in strangulation of the bowel, with those occurring where there has been infection with the Perfringens group of bacteria, notably the Welch bacillus of gas gangrene. He was able to lower his mortality by the use of antitoxin. This work has been duplicated by some and not accepted by others. Other workers were able to isolate the Welch bacillus from gangrenous appendices. The role of this organism in acute obstruction is yet to be proven.

In addition to the two types of obstruction mentioned, we must also differentiate between that occurring at the upper end of the alimentary tract (high obstruction) and that occurring in the lower portion (low obstruction). In high obstruction the onset is more rapid and the course of the disease progresses rapidly. Here there is a rapid loss of chlorides and fluids with early dehydration and exhaustion. Now, if the factor of strangulation be added, the condition terminates fatally very shortly. In cases of low obstruction the onset may possibly be as acute, but the progress of the case is slower, and

the true condition may be temporarily masked. In any case of complete obstruction death is inevitable unless the condition is relieved. The difference in the symptoms between high and low obstruction can probably best be explained on anatomical and physiological grounds. The upper small intestine is essentially secretory in character, while the lower part is essentially absorptive. Experimentally, if a fistulo be made high in the jejunum of a dog and the contents allowed to escape, there will promptly develop symptoms of high simple obstruction. Now, if this fluid is shunted into the lower bowel the symptoms are promptly relieved. When obstruction occurs in the lower bowel there is not the marked prompt loss in chlorides and fluid that there is in the case of high obstruction, and so symptoms are slower in developing. Simple obstruction is more apt to occur in the upper part of the bowel, while obstruction in the lower part is more apt to be associated with strangulation.

The commonest cause of acute obstruction is strangulated hernia. Next in order comes post-operative adhesions. These two conditions account for the vast majority of obstructions. Other conditions which must be kept in mind are—pyloric stenosis, volvulus, intussusception, Meckel's diverticulum, and in the elderly, obstruction from a new growth. By far the commonest location of the obstructing lesion is the lower end of the ileum, the sigmoid being second in frequency.

Clinically the cause of the high mortality is invariably delay, and in this delay three people are usually concerned, namely, the patient, who usually attempts to treat himself with cathartics before calling a doctor. Secondly, the clinician who often wastes valuable time temporizing with the condition, giving morphine and enemata. Enemata, of course, are highly justified, but too often delay is counseled because of the fact that the enema gave some relief, not realizing that the enema only washed out the bowel below the obstruction. Finally, the surgeon may still further delay after the patient has been admitted to the hospital. Much valuable time being wasted repeating enemeta, and postponing the decision to operate. If one can bear in mind that with each hour of delay the mortality rises one per cent it may help in deciding on treatment in these cases.

Diagnosis—Lead colic, tabetic crises, thoracic pathology with abdominal symptoms, must be kept in mind and ruled out. The diagnosis of high obstruction, to be of much value, must be made before the physical findings are of much help. With a history of sudden onset of acute upper abdominal pain, plus repeated vomiting, collapse, and sub-normal temperature, the case must be considered as one of high obstruction until this can be disproved.

If the obstruction is lower down there is more time in which to make a diagnosis and the physical examination is often of greater value. Deaver stresses the point that when acute obstruction is suspected, the naked abdomen should be carefully palpated and ausculted.

The diagnosis of acute mechanical obstruction in the presence of the classical findings—colicky abdominal pain, followed by nausea and vomiting, with inability to pass gas or have a bowel movement, is of course simple.

Pain is usually the most reliable and persistent symptom of mechanical obstruction not associated with peritonitis or abscess. It is usually colicky unless there is involvement of the mesentery in which case it is apt to be continuous.

Vomiting is the next most reliable symptom. The lower the obstruction the longer the vomiting is delayed. To wait until vomiting becomes fecal in character is to have waited too long.

Inability to pass gas or to have a bowel movement is of course diagnostic, when present, but often in the early stages of obstruction enemata will empty the bowel below the obstruction and give a false sense of security.

In the early case, laboratory findings are of little value. Later the white blood cells may be increased to 10 to 15 thousand, or even higher. The urine will show albumin and at times casts. The blood pressure gradually falls. Blood chlorides fall late.

The physical examination may show much or little, depending on the location of the obstruction as well as the length of time that has elapsed since the onset of symptoms. If the obstruction is in the upper part of the small intestine, little will be gained from the physical examination. If the obstruction is low there may be moderate distention, with some tenderness. Auscultation will reveal stormy peristalsis in the early stages. Later when peritonitis supervenes, the abdomen will be silent. Where the obstruction is due to volvulus of the sigmoid the distention is greatest, at times causing embarassment of respiration.

If there is doubt as to the diagnosis and the condition of the patient warrants it, the X-ray is often of help. Of course it is not admissable to give these patients barium, but a flat plate will reveal an excess of gas in the bowel, and if the plate can be taken with the patient in the standing position, various fluid levels will frequently show. These are diagnostic of obstruction.

At times paralytic distention of the bowel, with regurgitant vomiting with an absence of characteristic pain, may so closely simulate mechanical obstruction or peritonitis as to make differentiation impossible. In all cases of mechanical obstruction there is some peritonitis present. In the early stage this is not marked. Later it becomes more marked and the symptoms more pronounced. In cases where there is some abdominal pain, rigidity, tenderness and slight distention, possibly vomiting and hiccough with inability to pass gas, it is better not to delay operation.

Treatment: The pre-operative treatment consists in emptying the stomach by means of a stomach or duodenal tube, which latter may be left in place if there is much vomiting. The rectum should be emptied by enemata. If the obstruction has been present more than just a few hours there is probably a decrease in the chlorides as well as fluids. This is best made up by giving either a three per cent saline solution intravenously, or more usually by giving glucose 5-10% in normal saline. This should be given in sufficient quantity to make up any deficiency present.

Once operation has been decided upon, the question of anesthesia presents itself. Where there is no contra indication to its use, spinal

anesthesia should be the choice. This gives such a marked relaxation of the abdomen that the surgeon is spared the necessity of constantly fighting distended loops of intestine in his search of the abdominal cavity. As has been so aptly said of operations for obstruction—"Each manipulation is a shove towards the grave." By means of spinal anesthesia the handling is reduced to a minimum. Once the abdomen is opened the question of what to do and how much, must be decided. This will vary both with the anatomical findings and with the stage of the obstruction. If the obstruction is of very short duration it may be sufficient to free the obstruction and close the abdomen, the patient making a prompt and uneventful recovery. If the patient is seen late in the course of the obstruction, spinal anesthesia as well as general anesthesia will probably not be tolerated. Here it is best to do an ileostomy under local anesthesia without making any attempt to determine the underlying pathology. If the patient survives, this may be done later. It is the cases occurring midway between these two extremes that tax the skill and judgment of the operator to the utmost. It must be remembered that many patients have died after their obstruction has been relieved, due to absorption of toxin. The question as to the best course to pursue must be decided in the individual case. Where a portion of the bowel is gangrenous it must be resected, either in one or two stages as the case warrants. If the bowel wall seems to be in good condition after the obstruction is relieved it is generally best to empty the obstructed bowel of its content by means of an enterostomy. Some men making it a practice to empty the bowel and then close the enterostomy, others leaving the enterostomy tube in place. The latter is safer.

Here again spinal anesthesia is often of great help in that peristalsis is frequently present and will help to empty the gut, without any milking, as is practiced by some.

Post-operative treatment should consist in forcing fluids—saline and glucose either sub cutaneously or intravenously or both, to the extent of three to five thousand c.c. every twenty-four hours, and nothing should be given by mouth until normal peristalsis is restored.

Prognosis: This will depend on several factors but especially on the element of time. As Van Beuren very aptly expresses it—"The longer a patient with intestinal obstruction lives before operation, the sooner he dies afterwards."

Cases operated on within twelve hours of onset of symptoms have approximately 75% chance of recovery. After twenty-four hours, only fifty per cent chance. After ninety-six hours, about 15% chance of recovery.

DISCUSSION

THE CHAIRMAN: Dr. R. O. Lyday, of Greensboro, will open the discussion on Dr. Sprunt's paper.

DR. LYDAY: Dr. Sprunt has presented to us a good survey of the subject of acute intestinal obstruction. He has embodied in his paper the most important modern ideas concerning the treatment of this condition.

It is indeed discouraging when we think of the present mortality as being around sixty per cent in spite of all the valuable experimental work that has been done and the many advances made in blood chemistry.

In dealing with these patients, as Dr. Sprunt has said, it is well to remember that the mortality increases roughly one per cent for each hour that operation is deferred.

The division of the types into high and low, with subdivisions of simple and gangrenous, seems a good classification to me. One should, of course, make every effort to differentiate between the mechanical and the paralytic type of obstruction. Gastro-mesenteric ileus must be kept in mind.

It is probably best to perform bowel resection of gangrenous segments in two stages rather than attempt to make an anastamosis at the time of the emergency operation. In this procedure, one brings the gangrenous loop outside the abdominal cavity and leaves it as in the first stage of the Mikulicz operation.

In spite of C. J. Miller's conclusions from a review of a large series of cases, I agree with Dr. Sprunt when he advocates the use of spinal anaesthesia in all these patients where there is no definite contraindication to its use.

The Chairman: We now take up the third paper on our program. Dr. Hubert A. Royster, of Raleigh, N. C., will address us on, "Shall We Operate on the Acutely Inflamed Gall Bladder?"

SHALL WE OPERATE ON THE ACUTELY INFLAMED GALL BLADDER?

Hubert A. Royster, M.D., Raleigh

As a prelude to the more important papers to follow, I have the privilege of introducing this symposium by a brief discussion of a moot problem, which is now coming up very emphatically in the minds of many surgeons, namely, the management of acute gall bladder inflammations.

I have raised the question here as to whether we shall operate upon the gall bladder when it is acutely inflamed. In the words of one of our heroes when he was on the stand, I might say this question can be answered "Yes" and "No," mostly "No". But if you will allow me the privilege, which the physician has in such a situation, of qualifying my answer, I think we might arrive at the proper condition of mind in regard to this affair.

Seven years ago I prepared some notes upon this topic and until recently I never had the courage to present or publish them. In the light of increased experience, I am convinced that in our conservative attitude towards acute inflammation of the gall bladder, we have been neglecting some golden opportunities and, if you please, in a more homely way, we have been missing a few tricks. We have been waiting for the attack to pass, waiting too long, allowing the disease to progress to an acutely suppurative stage, either gangrene or perfor-

ation, or to become chronic, with repeated attacks; often allowing the crippling of distant vital organs and the occurrence of jaundice.

The question might be raised in the beginning, as it has been by a previous speaker, whether there is an analogy between the gall bladder and the appendix, in respect to acute inflammation. While I believe there is an analogy, at the same time I am convinced that it is not complete. The gall bladder is supposed to have a function; I think the research men are still debating that function, but it does apparently in a normal state play some part, perhaps only to concentrate the bile as its chief function and that it also has a physiological apparatus. But when we assume contrary to this analogy that the gall bladder does not perforate, does not distend and the bile fails to pass off, we will have some cases that die when they do come to operation or even without it. Acute cholecystits is one of the things that is presented as a so-called acute condition of the abdomen, an emergency. Now this inflammation of the gall bladder may be mild, as it is in most types of the cases, or it may be severe and permanent from the first. The mild ones may be allowed to subside as you perhaps have known in cases of acute appendicitis that always show a tendency to get well unless something disastrous is produced by harmful treatment; but also to get well and always to recur, as in the case of appendicitis. We believe once appendicitis, always appendicitis, until the little assassin is executed.

But in the gall bladder we have the same condition only rarely. We are accustomed, and it has been the law in the surgical profession to say, "Well, we'll wait for this attack to subside"; and again it is dangerous and positively harmful to operate upon the gall bladder when it is in the acute stage of inflammation, for fear of infection, the fear of disturbing the upper abdomen. But operation may be considered in these mild cases in the early part of the attack and either after the attack has just passed off, or even in the stage of acute inflammation, without disaster taking place, if you get them and operate upon them early enough.

In the severe types, immediate operation may be necessary to postpone the later catastrophe and to prevent the occurrence of jaundice which is always a complication, and perhaps to save life. I refer chiefly to those cases with all the symptoms and signs of acute inflammation, the pain, elevated temperature and pulse, with increased white blood count, with tenderness and spasm over the gall bladder. That is our picture. In such cases the gall bladder is distended, the cystic duct is occluded and practically the organ is obstructed by a stone. We do not often see these persistent acute manifestations of the gall bladder, the so-called cholecystitis without stones; they practically always become chronic, or tend to do so. This type presents a perfectly definite picture similar to the acutely inflamed appendix. Now, these cases may come to the emergency ward, or in private practice, as an "acute abdomen," and I believe that these cases must be at least considered potentially dangerous because of the tendency either to rupture into the free abdominal cavity, or to be walled off after the perforation, sometimes with an abscess in the liver or along-

side of the gall bladder. We have seen these cases, but fortunately they are not common. We grant that these are rare; and yet at the same time there is the rapid distention of a thin-walled gall bladder causing pain which may not be easily controlled by morphine—they require large doses sometimes; but the slow distention causes less pain and is usually controlled. Pancreatitis of greater or less degree of severity may supervene either sooner or later.

Our teaching has been to allow these cases to subside so that operation may be performed when acute infection is not present. There are two advantages, of course, in this: the patient stands the operation better, and there is a chance later to do a cholecystectomy rather than a cholecystostomy. But, I don't know whether many of you have seen this, but I have and certainly on several occasions, the existence of an acutely inflamed infected gall bladder along with that of an acute gangrenous appendix at the same time. I had an experience once in a case in which we found such a condition of the appendix and at the operating table the medical consultant was concerned with me in the question which came up. Through the incision, recognizing the acutely inflamed gall bladder, edematous, fluid around it, almost ready to burst. According to the custom the consultant advised non-interference with the gall bladder, and I was perfectly willing to follow the custom, and I considered it good advice, so we closed up the abdomen removing the acute gangrenous appendix. Five days later this man had a violent "bile peritonitis" and two days later we re-opened him to drain the gall bladder, but he died of a cholemia, within seven days of the operation. Now I don't know whether it would have been better to have gone in, and either drained the gall bladder, or perhaps removed it if possible at the time or not. But certainly that was according to teaching and custom. Now I have this to say about the mild types that we all see which occur in the acute stage and then go on with attack after attack; the gall bladder comes out of its bed, is easily removed, instead of being held by the firm, dense adhesions which you encounter with the more chronic types. If any of these gall bladders are treated in the truly conservative manner, one of three things is going to happen: first a subsidence of the infection without any destructive process; second, perforation with local abscess; and third, a perforation with a general peritonitis. I doubt very much our ability to predict what may be the outcome in a sane enough manner to warrant waiting in all cases on the ground that the first of these events, that is the subsidence of the process, will take place. Mind you, I am not advocating operation upon the gall bladder in its acute inflammatory stage in all instances, but I do say that we must meet this question just as we have the question of appendicitis and not wait until the complications occur before we advise operation. In cases years ago we waited till the abscess occurred around the appendix, and in the case of the gall bladder we have been waiting for jaundice in the past years. Now I think, we may revise that rule and we are inclined to operate in the early stages.

CHRONIC CHOLECYSTITIS WITHOUT STONES, BASED ON A STUDY OF ONE HUNDRED CONSECUTIVE CASES

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In recent years, I have been especially interested in the chronic infected gall bladder without stones, and have become astonished at the frequency with which chronic diseased gall bladders are diagnosed and treated as flatulent indigestion, heart disease, chronic constipation, gastric ulcer, etc. Consequently, we have taken one hundred consecutive cases of ours, upon each of whom we did a cholecystectomy, and have attempted to analyze them. We were successful in following up eighty-two percent of the cases; several live in and around Fayetteville, and we frequently see and talk with them. There was one death in the series from coronary thrombosis, on the seventh post-operative day, making a mortality of one percent.

Chronic cholecystitis, without stones, is a much more frequent disease than has been heretofore believed. Clinically, it seems to take the same place in the upper abdomen as chronic appendicitis does in the lower, and while not so treacherous and deadly in its sudden attacks, as the inflamed appendix may be, nevertheless it often undermines the patient's health and frequently leaves its effects on other organs and tissues. It seems that cholecystectomy is as well borne by the human system as appendectomy.

FUNCTIONS OF THE GALL BLADDER

The profession has been much enlightened in the function of the gall bladder by the valuable work of Graham, whose cholecystographic studies determine disturbed physiology. It is now well established that the gall bladder secretes a clear, colorless viscid mucoid material. If drained continuously in man, this amounts to slightly more than 20 c. c. per day.

That the gall bladder has the power of absorbing water and concentrating the bile, under normal conditions, has been well established beyond a question of doubt, by the quantitative experiment of Rous and McMaster.

The standard teaching for a century has been that the gall bladder is a storage house for bile, and it is undoubtedly true that the reservoir function of the gall bladder assists digestion by storing up the bile formed during the inter-digestive period. Pavlov referred to this stored and concentrated bile as the ignition bile. Ivy, in his Newer Physiology of the gall bladder, says that this is a very reasonable view, since we know that bile plays an important part in the digestion and absorption of fats, and that the fats are active gall bladder evacuants. This function is not essential to the proper digestion of fats, because normal digestion occurs in the absence of the gall bladder. This fact, however, does not gainsay

the role that the reservoir function of the gall bladder may play in normal digestion.

Some believe that the gall bladder has a biliary duct pressure regulation function; proven by the fact that the biliary ducts dilate following cholecystectomy, and that the resistance offered by the Sphincter of Oddi is less in amount in animals without gall bladders.

ETIOLOGY

The condition is said to be met with, most frequently, in stout, middleaged women who have borne children, and whose most common complaint is indigestion, gas on the stomach, and a sense of weight in the epigastrium, like a lump of lead. These symptoms are associated with the taking of food, coming on often before the meal is finished and persisting, in spite of reduction of diet to a minimum, but is definitely worse after injection of certain foods, usually greasy or fatty substances.

In our cases, only a small percent were fat, and of the seventy-three women, forty-four, a little more than half, were married and had borne children. Seventeen were married, some for many years, and had never borne children. Pregnancy and obesity are strong etiologic factors in cholesterosis of the gall bladder, which is considered by many to be a definite clinical entity; still, in chronic cholecystitis, exclusive of the cholesterosis of the gall bladder, they play a minor role, except for the traumas and infections sometimes occurring with pregnancy and labor.

Several predisposing factors are of importance. The youngest patient was fourteen; the oldst sixty-five, giving an average age of thirty-four years. In this series, there were seventy-three women and twenty-seven men; women being affected more than men, slightly greater than three to one. This is a smaller percentage of women than is usually the case. Sixty-one of the seventy-three women were married and forty-four had borne children. There were eleven colored women and five colored men; the majority of these were full blooded Negroes.

A history of typhoid fever was obtained in ten percent; in twenty-two percent, there was a history of at least one severe attack of influenza, several having had influenzal pneumonia. Fourteen percent gave histories of severe attacks of malaria, and one had had yellow fever; four percent had been operated upon previously for appendicitis. At operation, the appendix was found definitely diseased in ninety-two percent of the cases, and there were inflammatory conditions present in the lower abdomen in thirty-eight of the seventy-three female patients operated upon.

It seems from this survey that infection is the cause of most, if not all, the cases of cholecystitis. Deaver says the organ becomes secondarily infected by organisms which may be carried by several routes, notably the blood stream, the lymph channels, and the bile stream, and also by direct extension through contact with a neighboring diseased viscus or viscera. Deaver has consistently advo-

cated the lymphatic route from the liver as the most frequent pathway, basing his conclusion on the association of hepatitis with practically every gall bladder removed.

Infections in the body, as a rule, travel by way of the lymph vessels, and there is no reason why infection of the gall bladder should present an exception to this rule. There is a free lymphatic connection between the liver and the gall bladder. Some assert that the infection spreads to the gall bladder by way of the lymphatics from a primary hepatitis.

The work of Graham, confirmed by Moynhan and others makes it certain that hepatitis is usually associated with cholecystitis, and probably is the earlier condition. The liver is known to have an important function in the distribution of bacteria brought to it by the portal circulation from the intestinal tract. The extension of infection is probably most common along the lymphatics to the subserous layer of the gall bladder and to closely associated structures, such as the duodenum, stomach and pancreas.

Wilkie has proven, experimentally, that the predominant infection in gall bladder pathology is without doubt a streptococcal one and it would appear to be blood-borne, for experimentally, cholecystitis results after intravenous injection of such streptococci even when the cystic duct is ligated, the gall bladder separated, and omentum intersposed between the liver and gall bladder. He says the organism can be isolated from the submucosa and outer coats, leaving the mucosa intact. Bacteria were also cultured from the cystic gland, the bile in all but a few cases was sterile. Prior to this experimental work, Wilkie himself had always taught and demonstrated the important part that the lymphatics play in gall bladder disease. This work of Wilkie must change our conception of gall bladder pathology.

I now am thoroughly convinced that the appendix is one of the most important etiologic factors in chronic gall bladder disease without stones. In this series, chronic pelvic inflammatory diseases rank second in importance to appendicitis, and influenza third as an etiologic factor.

DIAGNOSIS AND SYMPTOMS

The picture, during exacerbations of acute cholecystitis and in cases associated with gall stones, is characteristic, but exact diagnosis in chronic cases is rendered difficult by a lack of uniformity of clinical symptoms. Such variation is due largely to the presence of concurrent pathological tissue changes in other organs with corresponding commingling of functional changes and symptoms. The symptoms in those cases without stones are usually milder and less typical. Indigestion, bloating and belching without definite colic often occur; and here our experience coincides with Judd, in that this type of patient is less liable to get complete relief of symptoms from surgery, even though at operation there is definite pathology of the gall bladder.

The following signs and symptons were found in the cases reviewed: Average duration of symptoms, five years; tenderness in lower right quadrant at Murphey's point on deep pressure, 91%; pain and soreness in epigastrium or upper right quadrant, 85%; indigestion, gas, and sensation of undue fullness after eating, 81%; radiation of pain to shoulder and back, usually, 55%.

CHARACTER OF PAIN

Dull aching, 69%; knife-like or cutting, 20%; nausea present, 34%; vomiting, 24%; jaundice present, 6%; duodenal ulcer present, 8%.

Jaundice, which was formerly regarded as a frequent symptom of cholecystitis, is seen to be uncommon, as it appeared in only six percent of the cases. The great importance of pain in the upper right quadrant is seen in its incidence of eighty-five percent; but of almost equal frequency are the gastric symptoms, indigestion, etc., present in eighty-one percent.

It is interesting to note that the most constant sign was tenderness at Murphy's point, elicited by having the patient take a deep breath, and then exerting pressure during expiration. The eating of fatty and greasy foods, and large meals, seem to be often associated with indigestion, though usually the pain had no definite time relation to the meals; sometimes coming on at night and causing sleeplessness and fatigue.

The pain and indigestion vary from time to time in the same patient, and also vary in different patients, resembling kidney colic, gastric and duodenal ulcer, appendicitis, or any other abdominal cause of dyspepsia. This is due to the close relation of the abdominal organs through their reflex nervous mechanism and with the frequency with which there is a co-existing appendicitis, duodenal ulcer, and pelvic inflammatory disease.

Alverez, in his study of the mesenteric reflex, explained that the pressure of abnormal irritants in the intestines causes reverse peristalsis, rushing gas, bile and even food back into the stomach. The insufficient and abnormal bile for proper digestion and lubrication in the bowel is easily sufficient cause for such reversed peristalsis, with resulting gas eructation, nausea or vomiting, as well as for the epigastric pain or symptoms of the typical so-called ulcer histories, which are quite common.

Lian emphasizes the role that cholecystitis without stones may play in the etiology of grave heart disturbances. They may range from palpitation, extrasystole, arythmia, paroxysmal tachycardia, and protracted syncope, to angina pectoris and sudden death.

The diagnosis of certain cases of chronic cholecystitis is unquesttionably difficult. In the history we must bear in mind the fact that often the disease begins in early adult life, and that appendicitis, inflammatory diseases of the pelvis, influenza, tonsilitis, and epidemics of colds leave many cases of cholecystitis in their wake. Tenderness in the gall bladder region is a most important finding.

This is best elicitated by inserting the tips of the fingers well under the right costal margin and asking for a deep breath; at all times comparison is made with the opposite side.

The roentgenogram may show an enlarged gall bladder, defects in surrounding hollow viscera or the effects of adhesions, but its value has been greatly increased by the work of Graham and Cole in developing their method of cholecystography. This test shows whether or not the cystic duct is patent, and, if so, shows the size, shape and position of the gall bladder, its motility and its ability to concentrate bile and greatly increases the number of cases in which stones can be demonstrated.

Gall Bladder infection, next to appendicitis, is the most frequent of all abdominal infections. In some classes of people, notably the obese, middle aged multipara, it is more frequent than appendicitis. It is the second greatest cause of chronic indigestion. Inflammation of the gall bladder may develop during the first and second decades, but as the local symptoms are not obtrusive, the condition usually escapes recognition; after middle age, the local symptoms predominate and the diagnosis of gall bladder disease is then made.

Study of the liver function, blood chemistry, and cholecystographic examination reveals much useful information, but often a diagnosis will mainly depend upon a systematic history taking and a careful physical examination.

TREATMENT

It seems to be the concensus of opinion that the only gall bladders which should be surgically drained are the cases where a more formidable procedure, such as cholecystectomy, would be too great a risk. Judd says that he has never seen harm come from the absence of a gall bladder, in spite of the theoretical objections that have been advanced against its removal.

Wilkie, in his lecture before the Interstate Postgraduate Assembly, 1929, says that an indolent but persistent infection of the gall bladder wall may be the focus from which secondary infections may travel, first by the lymph and then by the blood stream, to fascial planes, joints, hearts, muscles and kidneys. So clear is the association of a chronic gall bladder infection with certain forms of socalled rheumatism that signs of cholecystitis should always be sought for in the investigation of this group of cases.

If we regarded all gall bladder infection as being an indolent but persistent infection in the deeper layers of the wall and not an infection of the mucosa or of the contained bile, then it seems that the question of treatment is settled; for while drainage may give temporary relief from symptoms, it will not eradicate the infection of the gall bladder wall, nor will it give that complete restoration to comfort and good health which a cholecystectomy usually insures.

In this series of one hundred cases, all had cholecystectomies. In nineteen cases it was possible to do the socalled ideal cholecystectomy with peritonealization of the gall bladder area and closure

of the abdomen without drainage. The appendix, plus the gall bladder, was removed ninety-four times, and the appendix had been previously removed four times; in two bad risk jaundiced patients it was thought best not to bother with the appendix. In six cases, the common bile duct was drained with a Deaver T tube for from two to four months, for chronic pancreatitis and hepatitis; all were, or recently had been, jaundiced. In two cases, previous cholecystostomies had been performed.

The additional operations performed for diseases or conditions other than gall bladder, are as follows:

Three Complete Hysterectomies—for pelvic inflammatory disease, with badly torn and infected cervices.

Three Supravaginal Hysterectomies—for pelvic inflammatory disease.

One Complete Hysterectomy—for a myomatous uterus with cystic degeneration of both ovaries.

Two Supravaginal Hysterectomies—for fibromyomata.

Unilateral salpingectomies and oophorectomies were performed six times; while salpingectomy with retention of at least one ovary, was the additional operation in eight cases. A suspension operation for an extreme degree of retroversion with some pelvic adhesions was carried out in five cases. Seven trachelorrhaphies were performed, usually a conical excision of the cervix and endocervix. One operation for umbilical hernia and one for indirect inguinal hernia. There were six gastroenterostomies performed for duodenal ulcer.

Spinal anaesthesia is, I believe, much to be preferred above any other in the gall bladder patient; this form of anaesthesia was employed in thirty-two percent of the cases in this series, with excellent results. Crile says that spinal anaesthesia makes the division between the autonomic nervous system and the brain complete; consequently, there is less shock, relaxation is perfect and there is less trauma.

Questionnaires were sent to one hundred cases, and we succeeded in following up eighty-two percent, leaving eighteen percent who could not or would not answer our questionnaire or return for examination.

One ulcer patient had a persistent bleeding type of ulcer on the posterior surface of duodenum with pylorus adherent to the gall bladder site; he had a partial gastrectomy recently performed elsewhere, and has been symptom free and doing nicely. Another of the ulcer patients has a small ulcer on the posterior wall of the gastrojejunal stoma and is now under medical treatment.

RESULTS

Excellent, 46%; Satisfactory, 25%; Unsatisfactory, 11% (includes two ulcer cases mentioned); not found, 18%. Total, 100%.

From the above, forty-six percent of the cases have received excellent results, that is, they are entirely free from the complaint for which the operation was performed, and are very much pleased with the results of the operation.

Satisfactory results, includes the patients who show improvement but still have some digestive disturbances, being not entirely symptom free.

The eleven percent unsatisfactory results are those cases who continue to suffer from the same symptoms without improvement. Two say they are worse than before operation, and think the wrong operation was performed.

I believe that the eighteen listed, not found, are the ignorant and illiterate whites and blacks, many of whom can neither read nor write, and probably some of the best results are in this group.

The unimproved cases are those in whom the symptoms were mostly of the dyspeptic type, with but little, if any, tenderness over the gall bladder region; but the main factors, in the failure to relieve symptoms, are due to the existence of long standing and far advanced pathological changes not admitting of operative correction or removal, such as far advanced hepatitis, pancreatitis, etc.

The treatment of cholecystitis is not a question of medical treatment as opposed to surgical, but rather coöperation between the medical man and surgeon, just as in gastric and duodenal ulcer. As a general plan, the uncomplicated cases of chronic non-calculus cholecystitis, after a complete diagnostic survey, should undergo careful medical supervision; during which time focal infections are radically removed, gastrointestinal function carefully regulated, diet supervised, rest, exercise and general hygienic measures insisted upon, drugs administered as indicated, non-surgical drainage of the biliary tract carried out, if possible, and in special cases autogenous vaccines used. If, after a sufficient period, not of years, such measures have failed to remove the clinical and physical evidence of cholecystitis, or if after a period of relief there is a recurrence of signs or symptoms, cholecystectomy should be advised. However, following cholecystectomy, medical measures should again be instituted.

With increasing accuracy in diagnosis, better results will be obtained from operative treatment.

CONCLUSIONS

I. While infection alone may not produce stones, still it does produce the non-calculus varieties of cholecystitis. This infection is rarely, if ever, a primary affair, but may be either by the blood stream, the lymph channels or by direct extension.

II. From the study of these cases, I am convinced that the appendix is the most important etiologic factor in chronic cholecystitis without stones. Chronic pelvic inflammatory diseases rank second in importance, with influenza third.

III. The coexistence of cholecystitis and duodenal ulcer is not rare, and in operating for gall bladder disease a careful examination of the duodenum should be made.

IV. The chronic dyspeptic patient without localized signs or symptoms receives little, if any, benefit from a cholecystectomy.

Tenderness over Murphey's point is an important sign and should be present before operation is decided upon.

V. Patients with advanced hepatitis bordering on cirrhosis or with pancreatitis are frequently unimproved by operation. These cases should have prolonged common bile duct drainage, if operated upon.

VI. Following operation, medical treatment, consisting of a properly regulated diet, rest, exercise and in certain cases, duodenal drainage should be commenced and kept up for a period of months.

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SOME PHASES OF GALL BLADDER DISEASE

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(The paper was read by Dr. Kluttz)

The pre-operative preparation of patients with cholecystitis is equally as important as in thyroid and prostatic disease. Included in the pre-operative preparation is the elimination of obvious foci of infection such as infected sinuses, abscessed teeth and infected tonsils from which the gall bladder infection could have originated and which, if left undisturbed, is capable of producing other abnormalities after the gall bladder has been removed. In reviewing our cases of gall bladder disease for the past three years it was quite striking to note the cases regarded as poor operative risk had done as well and in many instances much better than the cases regarded as exceptionally good risks. We attributed this to the careful and thorough pre-operative preparation the poor risk cases received. As a result of this observation we adopted a regular pre-operative routine for all gall bladder patients regardless of the risk. Naturally the chief object of the pre-operative preparation consists in supplying the liver with sufficient glycogen to carry the patient through operation and prepare him for any unsuspected post-operative hazards that may arise. After a positive clinical and roentgenological diagnosis of cholecystic disease had been made and the case considered operable, the patient is put to bed and the following routine carried out two days prior to operation. These patients receive a high carbohydrate diet and forced fluids. They receive one tablespoonful of glucose to six ounces of orange juice four times a day. Two days before operation they receive 500 c.c. of 15% glucose and normal saline intravenously. The same procedure is repeated the second day. On the morning of operation two hours before the patient goes to the operating room, he is given the same solution, or if the gastric analysis has shown achlohydria, 3% saline is substituted for the normal saline. The jaundiced patients receive in addition to this, 5 c.c. of 10% calcium chloride daily for three or four days prior to operation, which is usually sufficient to bring the coagulation time of blood to normal. At conclusion of operation hypodermoclysis of normal saline is started and continued until 8:00 P. M., when it is discontinued so that it will not interfere with the patient's rest at night. Just after its removal 500 c.c. of 15% glucose and normal saline is again given intravenously. Patients thus cared for have certainly had a much more rapid and pleasant post-operative convalescence and the mortality has been reduced.

The abundance of literature on the subject of post-operative morbidity in cholecystic disease can exert its effect in more than one direction. Careful, thorough and complete surgery is advocated by all, but much of the thoroughness should begin prior to operation. If there exists more than one pathological lesion every effort to ascertain the fact should be made before operation and this will eliminate a great deal of intra-abdominal ransacking which is conducive to both immediate and remote ill consequences. It is generally agreed that

best results following cholecystectomy are had in cases of cholecystitis with stones where sufficient disease exists to produce the classical train of gall bladder symptoms. It further seems that the highest percentage of failures following cholecystectomy occur in the so-called non calculus cholecystitis. At this time of urgent request for early diagnosis and early surgical intervention more and more of these mild non calculus cases will come to operation. It is in the non calculus cases that careful and dependable intravenous cholecystography is of great aid to the surgeon. We have not only found that the diagnosis is more accurate, but that it enables us to more intelligently evaluate the clinical symptoms and interpret the existing pathology at operation. Occasionally even at operation when inspection and palpation of the gall bladder is permitted it is most difficult if not impossible to be 100% sure whether or not the gall bladder is diseased sufficiently to demand its removal. Here an accurate knowledge of the patient's cholecystographic study and clinical symptoms is of great aid in arriving at a correct conclusion. We use the following classification in interpreting cholecystograms, employing the intravenous injection exclusively: Grade I in which there is mild deficiency in concentration of the shadow and in these patients we advise therapeutic trials, or if operated for other reasons, expect this to aid the opinion of the surgeon as he inspects the gall bladder; grade II, in which there is further decrease or marked diminution of the shadow, calculi visualized or not and the roentgenological opinion is to remove such gall bladders even if they appear and feel fairly good to the surgeon at operation; grade III in which no shadow appears, and except in rare instances surgery is required; grade IV are impossible surgical risks as evidenced by the cholecystogram, liver function test, and physical findings. The latter may show a slight shadow or none at all. The emptying function by the fat meal sometimes furnishes additional information.

We have had a ball and valve arrangement of a stone in the cystic duct which allowed grade I filling but no emptying, but all other cases in our clinic which have had a history of probably obstruction colic have shown grade II deficiency in dye concentration. Grade I concentration and failure in emptying was seen in three cases of obstructive duodenal ulcer, in which the fat meal was very slow in getting beyond the pylorus and so could not exert its emptying power. Posterior gastroenterostomy was satisfactory in all of these except one who eight months later apparently had an attack of cholecystitis with jaundice. We have observed cholecystographic series in which there is gradual loss of concentration and in which the wall of the right colon is well outlined by the dye. This is probably due to its passage through lymphatics in organized adhesions between the gall bladder and hepatic flexure. Cutting such lymphatics during operation before the dye has been eliminated from the biliary area opens up these lymphatics and allows seepage of the dye laden bile into the peritoneal cavity. We feel that one post-operative death preceded by a peculiar reaction was due to cholecystectomy 48 hours after injection of the dye.

Finding of deformities due to adhesions does not condemn a gall bladder if its concentration function shows up normally or even in grade I. It must be realized that sometimes nature has produced better results by adhesions than we can hope to accomplish by surgical interference. Our practice is to combine barium with the fat meal in such cases and study the relation to and condition of the neighboring parts. Duodenal ulcers are frequently attended by a gall bladder which gives a grade I cholecystogram, but which turns out to be uninvolved.

The degree of concentration of the dye shadows is influenced by the functional capacity of the liver as well as of the gall bladder and an inflammatory hepatitis may not have extended to the gall bladder at the time of such examination or subsequent operation, a normal gall bladder in a patient with a markedly inflamed liver being found although definitely deficient cholecystograms had been presented.

Chronic infections originating in the appendix and secondarily involving the liver and later the gall bladder may develop very slowly, similar to biliary involvement in typhoid fever which sometimes requires years to produce symptoms. In cases with vague abdominal symptoms of long duration diagnosed as chronic appendicitis and operation advised with some degree of skepticism, the possibility of biliary involvement must be considered. In such cases a positive or negative cholecystographic report enables us in deciding whether or not a doubtfully diseased gall bladder should be removed.

In cases showing a grade I cholecystogram or mild dysfunction of the gall bladder we think a trial medical treatment is permissable. This consists in proper non irritating diet and one which will supply the liver with sufficient glycogen, regulation of habits, relief of the frequently found spastic constipation, and other measures that will promote liver drainage. These patients are kept under careful observation, reporting at the hospital at regular intervals. It has been our experience that many such cases clear up and remain symptomatically well. The few that fail to improve are subjected to further roentgenological examination which usually assures us that the case is now surgical.

In handling these patients in this manner we not only feel that the real operable cases are brought to operation in due time before inoperable damage is done in the liver, but we believe that such patients are much better prepared for operations after being under medical care for a while than they were when examined the first time. We fully agree that many failures following cholecystectomy are due to procrastination with medicine and this in no way do we advocate. But on the other hand at least some good can come from a more earnest effort to differentiate between the operable and non-operable cases, and thus reduce the promiscuous removal of non-proven diseased gall bladders which occupies a permanent place in the morbidity following cholecystectomy.

DISCUSSION

THE CHAIRMAN: The three papers on the Gall Bladder will now be discussed. The chair recognizes Dr. Cobb.

DR. DONNELL COBB, Goldsboro: In speaking of careful and thorough surgery, Dr. Tayloe hits the nail on the head when he emphasized the fact that the thoroughness must begin well before the operations, and must be continued after the operation.

Mann has proved conclusively that the liver is absolutely necessary for the maintenance of the normal blood sugar level, and that the abundant administration of glucose will do more than anything else to fortify a disfunctioning liver, the seat of disease.

In the presence of jaundice there is a definite increase in the amount of calcium that is excreted from the body, although the blood calcium remains normal. Nevertheless, the administration of calcium in the form of its chloride seems to improve the coagulability of the blood. In those badly jaundiced cases that require surgery there is nothing that will fortify the condition of the patient so dramatically as blood transfusions.

In those cases of acute or subacute gall bladder disease, and those with stones, there is no question as to the need of surgery, although there may be some uncertainty as to the best time of operation.

That large group of cases diagnosed and operated upon for chronic cholecystitis do present a real problem. What constitutes chronic cholecystitis? Certainly the dividing line between the normal and abnormal is not clear cut. The term "cholecystitis" infers the presence of inflammation—yet several independent bacteriological studies of this type of gall bladder fail to show the growth of any organism in as many as fifty percent of the cases. Failure to obtain a larger portion of positive cultures suggests that there is some cause other than bacterial invasion that plays a part in the production of the syndrome spoken of as chronic cholecystitis. The comparatively frequent occurrence of the strawberry gall bladder, or cholesterosis, lends weight to the possibility that certain chemical changes or metabolic processes might be responsible for, or play the leading role, in the causation of many cases of chronic cholecystitis. Certainly the normal appearance and thickness of the gall bladder walls in many cases that have been operated upon on the diagnosis of chronic choleystitis indicate that the provocative pathology must lie elsewhere, perhaps in the bile passages or the liver. And we clothe our uncertainty by using the blanket term "cholecystic disease."

The dye method of studying the gall bladder has still further confused the definition of cholecystitis. Cholecystography is a test principally of the dye-concentrating ability of the gall bladder, and, except in case of stones, is not a means of demonstrating pathologic changes directly. Undoubtedly the dye-concentrating ability is most often disturbed when the walls of the gall bladder are diseased, but it is out of harmony with medical experience to expect

cholecystic disease to be diagnosed infallibly by any single laboratory test.

All of which brings me to the point as to who and what is going to decide whether or not the gall bladder is diseased and should be removed. Shall it be the careful clinical history; shall it be the cholecystographic findings; shall it be the gross appearance of the gall bladder as seen by the surgeon at operation; or finally shall it be the pathologist who finds a small area of round cell infiltration in its walls? Of course, a combination and correlation of all of these factors should decide the question. The most important information, however, from a practical standpoint is that which is obtained from a careful study of the clinical history and the surgical procedure can most successfully be based on this phase of the problem. If the condition is clear cut clinically the results of surgical treatment are most gratifying. But if the clinical picture is not clear and the observation at operation are not definite, the results of treatment are not satisfactory.

Dr. R. O. Lyday, Greensboro: In speaking of operations for acute gall bladder conditions, one must bear in mind the possibility of coronary heart disease in middle-aged people who have suffered from mild digestive disturbances. Recently, this was impressed upon me very forcibly when I saw a man, aged 61, who showed, in my opinion, all the characteristics of acute gall bladder disease. He was extremely rigid over that region, less so over the epigastrium; but the pain and tenderness were present over both these areas. He was suffering from intense pain.

Careful questioning revealed the fact that he had had a mild digestive disturbance, which was rather definitely related to meals, and there was more or less relief obtained by the taking of alkalies. I saw him with another doctor, and it was our opinion that it must be that type of acute abdominal condition. He had a leucocytosis, a temperature of over 100 degrees, and a little picking up in the pulse rate. We decided to defer operation, certainly for the present. To my surprise, about ten hours later, he developed all the signs and symptoms of a coronary occlusion, from which he succumbed.

The infection in chronic gall bladder disease is generally considered to be due to the streptococcus. Whether influenza plays a part in this condition I do not know. It is hard to tell from statistics, because practically every person one sees nowadays has had from one to four or five attacks of what he calls "influenza."

Koster, who believes that the infection in the liver is primary, and not secondary, to chronic cholecystitis, feels that the fact that Wilkie was able to produce cholecystitis by intravenous injections of bacteria with the omentum interposed between the gall bladder and the liver, with no subsequent infection in the liver, is some evidence that the liver infection is secondary to that of the gall bladder.

I believe that Dr. Deaver is of the opinion that the majority of cases of hepatitis are secondary to gall bladder disease.

With regard to the results of operation on these types of gall bladders, I agree with Dr. Highsmith when he says that one of the most important localizing signs is that of tenderness over the gall bladder region. A history of colics characteristic of disease in this organ has certainly entered into the prognosis of the patient's health after cholecystectomy.

In those cases of chronic cholecystitis without stones, where the ssymptoms were more or less purely those of a reflex gastric disturbance, Dr. Deaver, last year, practised removal of the anterior portion of the pyloric muscle. What results he obtained from this procedure I am not prepared to state.

I believe, however, that one should be very conservative in recommending surgical treatment in those cases, especially if there is question of definite gall bladder disease. As we all know, it may be very difficult to determine, even on inspection and palpation of the gall bladder, in some of these, whether there is actual disease of the organ.

The Chairman: The subject is now open for general discussion. Dr. Bost.

Dr. T. C. Bost, Charlotte: Mr. Chairman, I want to reminisce for just a minute on one phase of this subject.

About six or seven years ago, Dr. Roberson read a paper in this city before this society on the gall bladder. In the discussion of his paper I made the statement that we should never consider the gall bladder as an emergency, unless there was some reason to assume that it was perforated. There were about a half dozen discussed the paper after me and took the opposite view. Some of the gentlemen compared the acute gall bladder to an acute appendix, favoring an immediate operation for fear of rupture, and for fear of spreading peritonitis. A number of them recalled having seen in the past week a half a dozen ruptured gall bladders, or some such number, when, as a matter of fact, they had only seen one or two ruptured cases in years or perhaps in their life. Rupture being such a rare condition that one or two cases was so magnified in their minds that it seemed like a great number.

Statistics show that the gall bladder ruptures in less than one-fourth of one per cent. In other words, following the law of averages you would only see one ruptured gall bladder in four or five hundred gall bladder operations.

Others stated that they had no trouble with their gall bladder cases, and that the operative mortality was very low, notwithstanding the fact that these cases are rather poor risks, especially in the acute stage, with their high rate of pulmonary complications. Then, too, these cases are usually in people past middle life, the obese, cardio vascular renal disease, general debility, etc. You naturally would have very few deaths if you did very few cases (applause).

I am glad to hear that the trend of this discussion today is to allow a little time for the acute stage to subside. It is a step in the right direction and indicates a distinct advancement.

In closing the discussion, Dr. Robinson came to my rescue stating that he was not in favor of operating on the very acute cases.

Dr. Kluttz, closing the discussion: Mr. Chairman and Gentlemen and Ladies, it is a pretty big subject and it is a thing that can not be answered in exact terms. After all, it is probably a question of individual experience and judgment. However, there are a few fundamental things in connection with the acutely inflamed gall bladder that I think we can say certainly. The fact is that an acute cholecystitis is seldom an emergency operation. With the exception of typhoid fever, perforated gall bladder is most uncommon, and typhoid fever being uncommon itself now, perforated gall bladder is a pretty uncommon thing. Now, the question arises in our mind naturally, why should we operate, or why should we not operate, on the acutely inflamed gall bladder? There is this, that the whole object in operating on the acutely inflamed gall bladder is to get the patient well. Experience has shown that the acutely inflamed gall bladder, if operated upon immediately without preparation, the mortality will be high. So I think that we can say, as a general thing, that the acutely inflamed gall bladder should not be operated upon during the immediate disturbance. It does not follow that a patient should go on to another attack, because then, when the patient comes back for the operation, then there is entirely a different picture. Not the occasions that Dr. Royster spoke of that peel off easily, but the cases which may make a very serious condition. So I think that we can safely say that the acutely inflamed gall bladder, as a general thing, should not be operated upon. Of course, the patient will do better if they are allowed a few days for the acuteness to subside. Now I think that everyone is agreed that we forget that there is a level in gall bladder disease. Many patients who do not do well following operation is not on account of the fact that the operation was done, and there was something wrong with the technique, but it is on account of the fact that the patient's liver is completely out of commission, and the patient may go ahead and die on account of a lack of liver function. We also know that in order for the liver to function properly that it must have a certain amount of glucose work-off. In fact, all of the patients should be given glucose, as Dr. Royster said, either by mouth, or if they will not take it by mouth, intravenously. These patients, if they are expected to get well, must have a certain amount of preparatory preparation before the operation.

The Chairman: If there is no further discussion, I will ask Dr. Royster to close the subject.

Dr. Hubert A. Royster, Raleigh: Mr. Chairman, I would not leave the impression that I believe in operating upon all gall bladders in the acute stage of inflammation. The topic was stated in the form of an interrogation, for the purpose of expressing the doubt

both for and against any such procedure; but I do insist that the gall bladder of the fulminant type in the acute stage will need operation, sometimes, to save life, and that in the early convalescence after an ordinary acute attack, at that stage the gall bladder is more easily and more safely removed.

Expression has been given here to the statement that the operation would be done as soon as the patient recovers from the attack, but not to wait until other attacks have occurred. Some of us have seen cases—they may be rare—in which the patient does not readily recover from the acute attack, but it may be prolonged, even to the extent of keeping the patient bedridden, or there may be other acute attacks following closely upon the heels of this one, so that the patient never gets back to the normal.

How many times in the old days did we say that as soon as the jaundice was safely out of the way, then we would operate? And then we kept on waiting, and the jaundice did not disappear.

While I do not rank acute cholecystitis as, in general, an acute abdominal emergency, I think I have seen cases that died without being operated on, or from operation in the desperate stage resulting from this condition. I admit the difficulty of diagnosis.

Now, Miller of Boston, has studied two hundred cases at the Massachusetts General Hospital, taking them in succession without selection. Of these two hundred cases, the records of the acute cholecystitis cases, with repeated attacks, sometimes operation at that time and sometime later, 160 had stones in the cystic duct, and the records were not accurate enough as to the others, but we presume that there were many others who had stones, which were not recorded. 27 of the cases, or 13 percent, died. None of these were operated during the acute stage, but died from later operation. And of the fatal cases, the duration from onset to operation, was 15 days, and in the other 173 who recovered, the average date from onset to operation was 8 days, so that of the fatal cases 30 percent had local inflammation; none had general peritonitis, and four were doubtful in the records.

Now, there might be some question, in scrutinizing these cases from an individual point of view, as to the operator's or the physician's judgment, but Miller raises this question, which might be present in the surgeon's mind when confronted with the acutely infected gall bladder, that the teaching has been to wait, and he suggests that the surgeon's attitude should not be "How long shall I postpone this operation?" but "Why should I not operate now?" In the presence of definite subsidance of the symptoms, I agree that when the patient's condition is good, operation may be safely postponed, but not too long. If, on the other hand, there is a persistence of high fever and tenderness, and particularly—this is most

important—if there is severe pain not easily controlled, then surgical intervention should be undertaken, I think, without delay.

In cases in which the patient's condition is questionable, then, of course, the surgeon should not allow himself to be tempted into complete removal of the gall bladder, and in these instances the simple drainage operation is not an operation to be deprecated. It may be the very thing, and, as numbers have testified, there is very definite indication for cholecystostomy in some of the patients, either first or last, according to your view of the case and your interpretation of the symptoms. (Applause.)

THE CHAIRMAN: Dr. Highsmith.

DR. J. D. HIGHSMITH: One thing in the study of these cases that struck me very forcibly, was that in the unimproved cases, which amounted to 11 percent, they consisted mostly in those in whom the symptoms were mostly of the dyspeptic type, with but little if any tenderness of the gall bladder region. And the second main factor in the failure to relieve symptoms, I believe, is due to the existence of a long-standing and far-advanced pathological change, not admitting of operative correction or removal, such as far-advanced hepatitis, pancreatitis, and so forth.

A word further in regard to the treatment. The treatment of cholecystitis is not a question of medical treatment as opposed to surgical, by that I mean the noncalculus cholecystitis, but rather cooperation between the medical man and the surgeon, just as in gastric and duodenal ulcer.

As a general plan, the uncomplicated cases of chronic noncalculus cholecystitis, after a complete diagnostic survey, should undergo careful medical supervision during which time local infections are radically removed, the gastrointestinal function carefully regulated, diet supervised, rest, exercise, and general hygienic measures insisted upon, drugs administered as indicated, and nonsurgical drainage of the biliary tract carried out, if possible, and in special cases autogenous vaccines. If after a careful period, not of years but of months, such measures have failed to remove the clinical and physical signs of cholecystitis, or if after a period of relief there is a recurrence of signs or symptoms, cholecystectomy should be advised. However, following cholecystectomy, medical measures should again be instituted.

With regard to my conclusions, the main thing that I got out of the study of these cases was that while infection alone may not produce stones, still it does produce the noncalculus varieties of cholecystitis. This infection is rarely, if ever, a primary affair, but may be either by the bloodstream, the lymph channel, or by direct extension. From the study of these cases, I am convinced that the appendix is the most frequent etiologic factor in chronic cholecystitis without stones. Chronic pelvic inflammatory diseases rank second in importance, with influenza third. The coexistence of cholecystitis and duodenal ulcer is not rare, and in operating for gall bladder

disease a careful examination of the duodenum should be made. The chronic dyspeptic patient without localized signs or symptoms, receives little, if any, benefit from a cholecystectomy. Tenderness over Murphy's point is an important sign, and should be present before operation is decided upon. Patients with advanced hepatitis, bordering on sclerosis, or with pancreatitis, are frequently unimproved by operation. These cases should have prolonged common bile duct drainage, if operated upon. Following operation, medical treatment, consisting of a properly regulated diet, rest, exercise, and in certain cases duodenal drainage, should be commenced, and kept up for a period of months.

I thank you. (Applause.)

PROGRESS MADE IN PROSTATIC SURGERY

A. J. Crowell, M.D., and T. M. Davis, M.D.

Of The Crowell Clinic, Charlotte

During the last thirty years great progress has been made in the management of prostatics and in prostatic surgery, but probably during the last fifteen years greater progress has been made in this branch of surgery than any other surgical specialty. More attention has been given to the preparation of the patient for this operation than ever before, and thus a more definite knowledge of the patient's ability to undergo the different operative procedures.

The estimation of the 'phthalein elimination and nitrogenous retention are great aids in determining the time for operation. As a result, the mortality following prostatectomy, by whatever method of approach, has been greatly reduced. Thirty years ago it was about 25 to 30 percent. Today it is about 3 percent on an average. That obtained by the most modern methods of prostatic resection is much below this average. The relief of the symptoms produced by vesical neck obstruction and prolongation of life is the object to be obtained.

Probably the greatest progress made for the relief of our prostatics during the last five years has been in the different methods of removing them through the urethra. Our leading urologists have been searching for a less hazardous procedure for the relief of these patients, and as a result many instruments have been designed for their removal through the urethra. These instruments are designed largely to remove median lobes and prostatic bars, but they can be used to relieve the symptoms caused by large adenomatous hypertrophy as well as that of the malignant gland.

Nearly 100 years ago, in 1836 to be exact, Gutherie devised a concealed blade in a catheter to incise the vesical neck. Mercier, in 1839, devised a prostatic incisor which he employed successfully in a number of cases. Civiale devised a similar, though less successful instrument, for this purpose, about the same time. The original idea undoubtedly belongs to Gutherie.

Battini's prostatic cautery was an improvement on the Mercer incisor, and was designed to control hemorrhage and relieve vesical neck obstruction. Following this, the most significant progress made up to that time was by Young in his ingenious punch. As a result of this idea similar instruments have been designed by Braasch, McCarthy, Caulk, Folsom and others, most of whom advocate excision by means of cautery in order to control hemorrhage. Beer suggested the use of the high frequency current to remove the obstructing tissue. This plan of procedure has been carried out by Goldschmidt, Randall, Stevens, Mahoney and others, but it remained for Collings, in so far as I know, to advocate the use of a high frequency cutting current through a McCarthy pan-endoscope for the relief of this condition. Stern took advantage of this idea and designed an operating cystoscopy whereby the obstruction is removed under vision, but it has no definite control of hemorrhage. This instrument has been improved upon by my associate, Dr. Theodore M. Davis, whereby a much larger piece of tissue can be removed at a time, and the hemorrhage thoroughly controlled. Dr. Frederick E. B. Folley, of St. Paul, Minn., has lately designed a cautery whereby he can remove vesical neck obstructions by means of a cutting current electrode, removing large lobes enmasse and then slice them up with the same cutting wire and remove the tissue by means of evacuators or instruments designed to remove foreign bodies from the bladder. This work so far, I understand, has been largely experimental and has not been practiced extensively clinically. We feel that the plan of Stern and Davis of removing the tissue as it is incised the better method. It requires less manipulation, produces a minimum of trauma, and gives complete control of hemorrhage. This work is done under sacral and transcaudal anesthesia, which lasts from one and one-half to three hours and gives ample time to complete the operation.

In carcinoma and fibrous obstructions this operation is ideal. No one believed that more than one percent of the cases of malignancy are cured by surgery. As a rule they do not fall into the hands of the urologist until the disease has progressed so far that complete enucleation is impossible. If seen early, the extensive operation necessary to remove all the malignant tissue, as advised by Young, and the danger of complete incontinence following the operation, is so great that we feel the results do not justify the operation.

I am convinced that the rational way to handle these cases is to remove the obstruction, give comfort to the patient and hold the malady in abeyance by means of radium and deep X-ray therapy. The obstruction can easily be removed by prostatic resection, relieve the symptoms and make life bearable. I have seen a patient who had bone metastases, wonderfully relieved of his symptoms and increased 28 pounds in weight in six months time following this operation. This patient returned home more than two hundred and fifty mile away, five days after the operation and now says he does not have an ache or a pain. His tenesmus before operation was

severe and he had to void about every half hour. Radium and X-ray were used in this case after the obstruction was removed.

The small fibrous gland is difficult to remove, either suprapubically or perineally, but it is an ideal condition for this operation. The large adenomatous lateral lobes are the most difficult to remove by the method, but the obstructing portion can be resected and the bladder drained easily. This is all that is necessary and does away with the danger of epididymitis and other complications, and does not diminish the patient's sexual power. The normal physiological function of the gland is not in the least inhibited. The average hospitalization following the operation is about five days, and the preoperative care is greatly simplified as compared with that necessary for prostatectomy.

DISCUSSION

The Chairman: Dr. C. O. Abernethy, Raleigh.

Dr. C. O. Abernethy: I want to congratulate Dr. Crowell, and I certainly am glad to meet Mr. Wappler, the eminent manufacturer of surgical instruments, who is doing so much for mankind, and in collaboration with Dr. Davis in perfecting this particular apparatus. I feel certain that the prostate I saw yesterday, which Dr. Crowell operated on seven years ago, would not have recurred, and prostates often recur, had this method been carried out.

This man had an acute retention of urine and could not be catheterized with a soft rubber catheter without the use of a guide. Cystoscopic examination showed many deep trabeculations and two apparent diverticuli with orifices, about the size of index finger, on the right side of the bladder. The left lobe of the prostate was enlarged the size of a hen egg, and the middle the size of a pigeon egg. He had a false passage about a quarter of an inch anterior to the cut-off muscle, into which a soft rubber catheter would slip and go a quarter of an inch. I think this was caused by the opening made for the prostatic retractor not healing.

I am glad to hear Dr. Crowell and Dr. Davis again.

TRAUMATIC LESIONS OF THE ABDOMEN

REPORT OF A CASE OF TRANSFIXION BY BRIDGE TIMBER—RECOVERY

T. C. Bost, M.D., F.A.C.S., Charlotte

Abdominal injuries are comparatively frequent in this age of rapid transit, construction work and operation of machinery. Most of our present-day gunshot injuries are incident to our prohibition law and to bootlegging.

Wounds of the abdomen may be divided into penetrating and nonpenetrating. Penetrating wounds present external signs that direct us to the possible location of the intra-abdominal injury. This is especially true of stab wounds, but is not to be depended on in gunshot wounds since it is impossible to determine the course a bullet will take

after it enters the abdomen. Non-penetrating wounds may present only contusion as a guide or no visible external evidence.

There are two main types of injury, those involving hollow viscera as the stomach and intestines, and those of the solid or parenchymatous organs, as the liver, spleen and kidneys. Initial symptoms may be very similar, but the course is somewhat different. In the former class there is shock, some hemorrhage and later peritonitis. In the latter there is profound shock, profuse hemorrhage and rapid death before peritonitis develops.

Shock and Hemorrhage.—Frequently a patient's general condition is very misleading, that is, he may show no alarming symptoms even in the presence of severe injury. On the other hand, the symptoms may at first indicate serious visceral damage and in a short time clear up entirely. Shock is usually early and may be present in comparatively minor as well as in more serious internal injury. The differentiation is delicate and often difficult. In shock, the temperature is reduced, the pulse rapid and weak, the skin cool, respiration shallow and the patient is quiet. In hemorrhage the temperature is normal, the pulse rapid and of more volume, the skin dry and patient is restless. The leucocyte count which is increased in hemorrhage is not apt to be affected in shock. The blood picture other than leucocytosis is of little value as the red count and hemoglobin are not affected in early hemorrhage. The reduction is not present until later when the blood volume is diluted.

There is frequently a combination of symptoms of hemorrhage from injured mesenteric vessels and of beginning peritonitis from intestinal perforations.

There are certain findings which are indications of certain injuries. Blood in the urine indicates injury to the bladder or kidney, although there may be extensive kidney injury without blood in the urine.

Abdominal pain is usually a very outstanding symptom and is usually more intense in solid viscera injury.

Rigidity of abdominal muscles is constant and reliable and is more marked in intestinal injury. Deaver says that rigidity is literally a signboard that if correctly read and interpreted will lead the surgeon to follow the right road. Nausea and vomiting is another fairly constant symptom, which indicates peritoneal irritation and is more pronounced in intestinal perforation.

It is not so much my purpose to attempt to make a hair-splitting diagnosis as to what viscus is injured as to determine if there is an injury which demands exploration. This is not always easy as the symptoms and the general condition of the patient may be very misleading and give no indication of the extent of the injury within the abdomen, so that we do not always have the classical symptoms and unmistakable indications for exploratory laparotony.

Therefore, I would say, with very few exceptions, all penetrating abdominal wounds should be explored and every blunt or non-penetrating injury should be considered as a potential case of visceral injury until proven to the contrary.

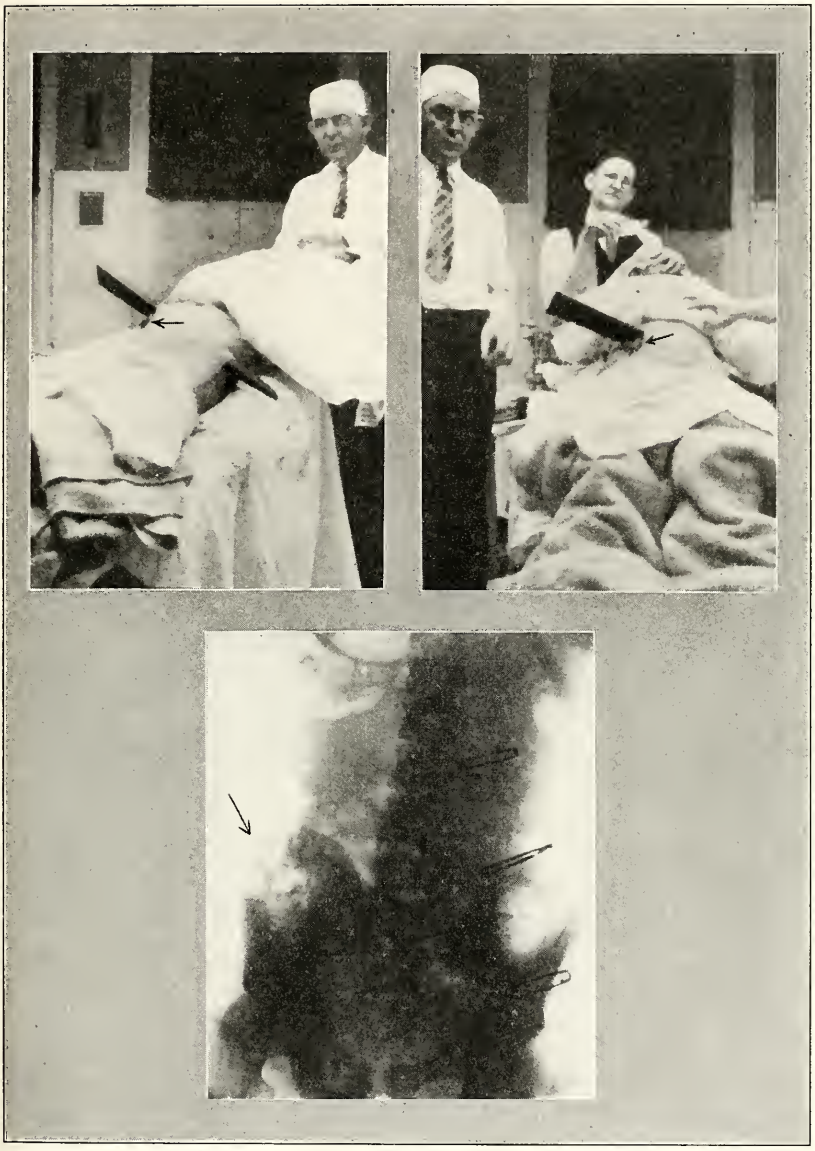

Fig. 1 Fig. 2

Fig. 3

Figure 1.—Timber in situ showing entrance and exit wounds. Arrow points to protruding intestional loops and omentum at entrance wound.

Figure 2—Body rotated showing large entrance wound and width of timber, three inches. Arrow points to intestions.

Figure 3.—X-ray of pelvis. Arrow points to bone injury of ilium penetrated by timber.

REPORT OF CASE

On April 11, 1930, an 18-year-old boy in an automobile accident on a bridge had a piece of timber driven through his abdomen from side to side. The timber had entered just internal to the right anterior superior spine and ranged downward and backward going transversely through the abdomen and the iliac fossa and made its exit through the gluteal region, the boy being pinned to the bridge as the other end of the timber was fixed to the bridge and was eight feet long. Dr. Vann Matthews who was on the scene, ordered a saw from a nearby farm house and sawed off the redundent timber, freeing the boy from the bridge and then rushed him to Mercy Hospital. The timber measured ¾ by 3 inches at entrance wound and tapered to 1½ inches at exit. He was admitted to the hospital in a rolling chair in a flexed position, as he was unable to lie down because of aggravation of pain when the attempt was made. Loops of intestines and omentum were protruding around the timber and there was hemorrhage from both the entrance and the exit wound. Shock was not pronounced; the pulse was 94 and of fairly good volume, temperature 98 and respiration 26. The patient was composed and surprisingly free from pain, and he had had only 1/6 grain of morphine. He was free from nausea and vomiting, and was fairly comfortable as long as he remained in a flexed sitting position. He insisted that no one touch the plank. He was placed on the operating table and given ether while sitting up. The timber was not removed until we were ready to proceed with the operation. A large gush of blood from the two openings following its removal. As a midline eight inch incision was made a large quantity of free blood and clots poured out. There were five holes in the mesentery ranging from three to four inches in extent with torn mesenteric vessels, which were still bleeding. Two loops of ileum were completely severed with tears extending down into mesentery. One other loop had a large perforation through its free border. This intestinal injury was all confined to approximately two feet of its length. To conserve time this two feet of gut was removed, making only one anastomosis necessary (instead of the two essential had loop been left in) and one closure of perforation. Two cigarette drains were put in the pelvis and the wound closed. Also the large entrance wound caused by timber was sutured. The exit wound, much smaller, was left open for drainage. A direct transfusion was given and repeated infusions of saline. The patient reacted well, vomited once next morning and made satisfactory progress. After three or four days he took liquid diet well and had no objectionable distention. Enemas brought good results.

Soreness was felt about the lobe of the left ear April 20th, followed by severe pains, high fever and chills. Much swelling of the neck, face and left eye. Tenderness and swelling most marked over parotid gland. The white cells were 73,000. Gland opened and drained, very thick pus April 25th. The patient began to complain of abdominal pain and nausea and vomiting April 26th. Severe hemorrhage from neck April 27th. This was arrested by packing. Transfusions and large quantities of saline given from time to time. The abdomen

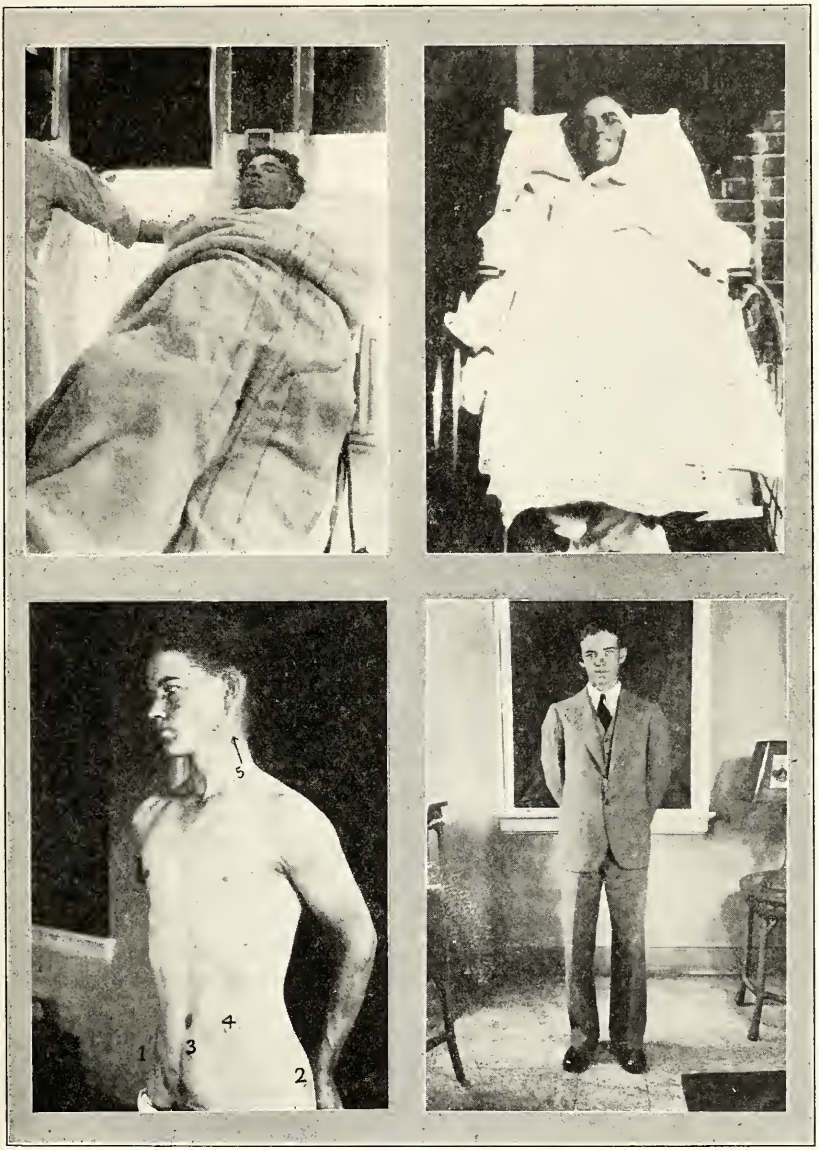

Fig. 4 Fig. 5
Fig. 6 Fig. 7

Figure 4.—Perititis with much swelling of neck and side of face closing left eye.

Figure 5.—Up in rolling chair. Dressing on left side of neck. Smiling, showing facial paralysis.

Figure 6.—Healed scars. No. 1, entrance scar; 2, exit; 3, scar from primary operation; 4, scar from operation for enterostomy; 5, scar from drainage of neck and ligation of carotid artery.

Figure 7.—One year after accident. In good physical condition. Now regularly employed at Highland Mfg. Co., Charlotte, N. C.

became much distended and tense, this was unrelieved by enemas, and patient was nauseated and vomited repeatedly. This was at first thought to be of toxic origin resulting from general septic condition of neck as the two conditions unfortunately existed at same time. April 28th fecal vomiting developed and patient appeared to be in extremis with intestinal obstruction. An enterostomy was done on the same day through incision in the upper left abdomen. There was marked peritonitis and loops of intestine were adherent to each other and to peritoneum. The enterostomy tube drained very freely and improvement was spectacularly rapid. Vomiting ceased immediately and distention went down. On April 30th, the second massive hemorrhage from neck occurred very quickly, filling the bed with a lake of blood. Patient was bleached white and gasping for air. No radial pulse. Hemorrhage arrested again by packing and immediate transfusion and saline again brought back pulse and hope of life. Improvement gradually followed for a week and then on May 7th a third neck hemorrhage occurred about ten p. m., which like the second, appeared to be the end, as the patient was in extremis from the great loss of blood, which filled the bed extending from head to foot, and patient gasping for air with no radial pulse. Saline and transfusion were again resorted to, which again revived patient. Hemorrhage this time could not be arrested by packing, nor were we able to control it by firm and continuous pressure over wound, as hemorrhage oozed through all packing. Finally, about two a. m., in desperation, after our failure to arrest hemorrhage by continuous pressure applied by hand, we decided that an attempt to ligate the external carotid was the least of the two evils and offered the best hope of life. Accordingly, light ether anesthesia was given. The wound in the neck was enlarged by incising downward through inflamed and distorted tissues so that it was very hard to recognize structures, and naturally there was further sacrifice of blood in the course of the operation. When the external carotid was reached and ligated there was no further hemorrhage. On inspection of the old sloughing wound above the ligation we found the opening, which had sloughed through the wall of the external carotid. Following this the patient's blood was again built up by transfusions. The sloughing wound did not bleed any more and gradually granulated up and patient had no further interruption in his convalescence.

A total of thirteen transfusions and gallons of saline infusions were given in course of treatment. He is now in good physical condition free from all aches and pains and can eat any kind of food and do heavy work. In other words, he is again a normal young man, but has a few scars to tell the tale.

SUMMARIZED IN TERMS OF A CAT'S NINE LIVES

1. Shocks and hemorrhage at time of accident.
2. Additional shock incident to operation for injury.
3. Peritonitis from both external and internal contamination.
4. Perititis and cullulitis of neck and operation for drainage.

5. Hemorrhage from sloughed external carotid artery.
6. Operation for intestinal obstruction, enterostomy.
7. Hemorrhage from slough into external carotid artery.
8. Hemorrhage from slough into external carotid artery.
9. Operation for ligation of external carotid with patient already in exsanguinated condition.

POST-OPERATIVE NEURASTHENIA

R. B. Davis, M.D., F.A.C.S., Greensboro

I wish to apologize to the Society for choosing as a subject "Post-Operative Neurasthenia." I am fully aware of the fact that we have no text book diagnosis as such, but I am also equally certain that in practice we do have this disease. I therefore, do not presume to bring to this body of practitioners any new disease or new ideas, but rather to turn, if possible, the "Search Light" on these poor unfortunate creatures.

The cases that I wish to classify as "Post-Operative Neurasthenics" are those that come complaining of many and varied symptoms ranging from the sole of their feet to the top of their heads, but along with it all goes three very *significant* and all *important facts.* First: They are *nervous;* Second: They present symptoms that are *not typical* of any *usual post-operative condition;* Third: And last, but not least, they *always inform* you that they have been *operated on* for these symptoms but have had no relief and, in fact, they are worse than before. Where is there a *doctor* who has not heard many times just this story when taking the history of some *new patient?* The symptoms are so numerous, the diagnosis so complicated and the treatment so extensive that I do not feel it practical to attempt to discuss these in this paper. The prophylactic and preventative treatment, however, can be discussed in a limited time. It is in this phase of the disease that I am particularly interested.

Well! What can we do about it?

First: I feel that the surgeons should shoulder most of the responsibility and be frank enough in the beginning to admit without argument that in many cases there has been a *surgical error;* either a sin of omission or of commission. Errors are only human and far be it from me to criticize, the many noble and sacrificing efforts, put forth by the surgeons, in behalf of *suffering humanity.* Still we cannot be so blind as not to see and realize that some very definite energies should be directed toward a correction of at least some of these rather common errors. To do this I believe we will have to ask ourselves a few questions.

How many cases of right-sided pain have we seen operated for a chronic appendix without an attempt to exclude stricture of the ureter or a calculus? Also, where there was a history of *chronic constipation* but the surgeon never asks the patient about the condition of the bowels.

How many cases of upper abdomen pain and gas have we seen have a cholecystectomy performed, *without first* making a gastric analysis,

X-ray with dye of gall bladder and if necessary, a gastro-intestinal X-ray? Neither was a blood Wassermann taken.

Who can number the cases of poor unfortunate women that have parted with part or all of their generative organs because they had a pain in the lower abdomen during menstruation; or because they had a soreness before and after periods which made them nervous or gave them a frequency of urination? Are they relieved? Yes, some of them are, but a large majority are only temporarily so. Following a prolonged post-operative rest in bed and a thorough cleansing of the intestinal canal they usually feel better. Added to this is the mental boost produced by the promise of the surgeon that they should be well *after* the *operation.* This improvement usually carries the patient past the date of dismissal from the hospital. But they still have their *constricted rectum, chronic intestinal stasis, viceroptoses* or *concentrated urine,* for which *nothing* HAS BEEN DONE AND OF WHICH NOTHING HAS BEEN SAID.

The surgeon conscientiously feels that he has produced another cure by applying *his art;* after *failure* of the *medical treatment.* But wait a *few* months and the family doctor has *another* belief with another added problem upon *his* shoulders.

It might have been different if the surgeon had asked the patient *how often* she took purgatives, *how much water* she drank, *what time* she went to bed and *what time* she got up? Also if her nerves were bad before she begun to have children so close together? Would it not have been practicing conservative and scientific *surgery* to have first recommended *free elimination, proper rest periods,* hot saline douches, proper diet and correctly fitted abdomen support? Perhaps the family doctor has already recommended some or all of these but the patient has not been faithful and coöperative. If you will insist upon her carrying out all instructions to the letter of the law it will *strengthen his hand* and frequently cure the patient without the *cutting art.*

There is a great tendency for the well established and highly esteemed surgeons of today, to join to himself associates and assistants. *For what purpose is this?* Almost invariably their duties are to TAKE HISTORIES, make PHYSICAL EXAMINATIONS, and in fact, frequently to make the PRE-OPERATIVE DIAGNOSIS. The senior surgeon *THEN* does the *CUTTING.* I cannot too strongly condemn this practice and custom. It may be the best economical surgery, but I am certain that it is not the most successful. It would be far better if the operating surgeon would make an examination and take some history himself *before* the patient went into the operating room. The family doctor himself can aid a great deal to remedy the above situation by not being in too big a hurry. He should not insist on the surgeon making a diagnosis of an acute surgical condition, should refrain from advising the family and patient that an *immediate* operation is necessary. It is very unwise for the family doctor to promise to remain with the patient until after the operation, if they will go to the hospital. There are a few cases that require an immediate operation, but if possible, this advice should come from the surgeon. (The family doctor often has to advise an immediate opera-

tion in order to get the patient to go to the hospital, any who will not agree with the above statement, a discussion would be interesting.)

Now to get back more directly to the subject of "Post-Operative Neurasthenia." Our experience which has been very limited leads us to believe that a goodly number of cases operated on fall into two classes: The one that is *incorrectly* and the other that is *incompletely* diagnosed. I fully realize that this statement is very bold but in all kindness I do believe in *my soul* that it is *TRUE*. Neither of these types should be expected to gain *much* or *lasting benefit* from an operation.

In our contact with these patients who are *still sick*, it is not at all uncommon to find them possessing some *knowledge* of the symptoms of disease and almost invariably to portray a fair element of doubt as to the doctor's ability to *diagnose* their condition and *successfully* treat it. They are usually *apprehensive* about their recovery and always magnify their symptoms far beyond what they *did*, when they went to the first surgeon and accepted an *operation*. This condition of the mind does not deserve condemnation but rather sympathy and help. They were sick and called their doctor. He came and found symptoms that for one reason or another did not respond to the usual treatment at home. Perhaps the sick person or the family were not quite patient enough. They wanted a cure too quickly. To protect himself as well as to comfort the family and patient he suggested hospital. But before the patient would consent to go they wanted a consultant. Often a surgeon is called. He urges their removal to the hospital and then the *patient* and *family* readily consent. By custom or by circumstances the family seem to look to the surgeon as the one now *in charge*. Although so far no definite diagnosis may have been made and certainly no *complete surgical* diagnosis has been made, yet, the case is almost domineered by a surgical mind from this point on.

The surgeon often makes the fatal mistake of allowing the family to *look entirely to him* for information. When he does, the attending physician *is as it were*, put on the *shelf*. All orders and information *for* and *about* the patient should *come only* after careful and repeated consultations. In fact this should be the rule until a definite surgical, medical or combined diagnosis is made. Then the case should be handled accordingly. Another mistake the surgeon may make is that of surmising that the attending physician call him simply to operate. What the attendant usually wants is someone to help him *make* a *diagnosis*, or in many cases his hand needs strengthening with the family. But the surgeon sometimes fails him by not realizing the situation. I am afraid that we surgeons sometimes assume a too important role, leaving the faithful family doctor unnoticed.

After the operation is performed the patient immediately feels that the supreme *price has been paid*, to regain his or her *health*. This causes them to get the right mental attitude. The rest and the diet also helps. The surgeon is now a "hero," a man of skill and prominence. The dismissal date rolls around and the surgeon may

collect his fee. But *alas!* When the patient begins to assume the usual home or business duties, soon and all too soon the same old symptoms reappear. At first perhaps only slightly *but yet* the patient recognizing them as the same type of *pain* and *discomfort.*

Now *what* would you do? *Where* would *you go,* and how would you *feel,* towards the *medical profession?* Is it any wonder that they have *doubts, fears* and *apprehensions?* Is it any wonder that they have sought some medical knowledge from the family medicine book, the daily newspaper or even the *almanac?*

They feel that perhaps the other doctors did not cure their ills because the *pains* were *not characterized* as *severe* or because they did not relate a *number* of *ailments, and* so it goes. They practice talking their aches and pains, both real and imaginary, to neighbors and friends. They procrastinate and delay about going to another doctor because of former experiences. So finally when they do go, they have developed already into a *POST-OPERATIVE NEURASTHENIC from which* few, if any, ever *completely recover.*

I am a surgeon myself and perhaps this paper is an attempt at a confession, for such *errors* as *related,* I have made. May I make just one plea to you, my colleagues?

Study your consultations and weigh every word and act. Take a more detailed, full and complete history. Make a thorough and painstaking physical examination. *Remember* that a surgeon is one who cures by applying the *surgical art* for destroying disease, *but how can he* if the disease is not *recognized.*

DISCUSSION

Dr. H. L. Brockmann, High Point: I think Dr. Davis has covered the subject thoroughly. I think we have spent our time well in listening to him.

Too often do we erroneously assume that a surgical operation alone will cure the patient. I feel that this is true of the patient himself, of the family doctor, and of the surgeon.

We should follow Dr. Davis's precautions and take a careful history and make a careful physical examination and make a diagnosis ourselves. It does no harm to check up on the family physician; and that is the family physician's desire in practically every case. If we do this, and make it thoroughly understood that after the patient has gone out from under our care we must still keep in touch with the family physician and with the patient until he has recovered, we will prevent a great deal of post-operative neurasthenia.

If we take our own history and make our own physical examination, we surgeons will not likely operate on a patient with pneumonia thinking he has appendicitis; or upon one with ureteral calculus, mistaking it for appendicitis; or for intestinal obstruction when there is only the fecal impaction in the rectum. There are many mistakes that we are prone to make if we do not go into cases thoroughly. I appreciate Dr. Davis's efforts in the patient's behalf. (Applause.)

THE TREATMENT OF CHRONIC SIGMOID-ABDOMINAL SINUS

R. B. McKnight, M.D., F.A.C.S., Charlotte

Mr. Chairman and Gentlemen of the Surgical Section: I am going to keep you only a few minutes. I wish to report a case which was referred to me October, 1929, by Dr. J. S. Gaul, of Charlotte. A white woman, age 45, complained of a discharging sinus on the abdominal wall in the midline between the umbilicus and symphysis pubis. She had been operated on in October, 1924, by a local physician, for what must have been an infected diverticulitis of the sigmoid. She stated that a drain of stiff rubber was placed in the abdomen after operation, but does not recall how long it was left in. Following this operation a discharging sinus persisted. Within a year's time two operations were performed in an effort to relieve her condition—both being unsuccessful. About a year before I saw her an excellent surgeon attempted unsuccessfully to repair this trouble. The sinus discharged liquid fecal matter and gas at intervals sufficiently close to necessitate the continuous wearing of abdominal dressings. Her bowel movements were normal except for some tendency toward constipation.

Physical examination revealed a well-nourished, white adult female, about 45 years of age. Examination was essentially negative except for the following findings: (1) A tendency toward obesity, (2) a deformity of the lower portion of the sternum, including the xiphoid, upon which some operation had been performed, (3) a large incisional hernia extending from the umbilicus to the symphysis pubis, (4) an open sinus in the midline about two inches above the symphysis, and (5) evidence of pelvic adhesions on vaginal examination. The sinus discharged small quantities of liquid fecal matter and gas. Methylene blue injected into the rectum promptly appeared on the abdominal wall.

She was hospitalized and further studies and preparation made. Laboratory examinations showed an approximately normal urine, normal hemoglobin and red cell count, 11,000 white cells and a negative blood Wassermann. X-ray studies were reported as follows: "When the sinus in the abdomen is injected with opaque medium, it is found that the canal takes a tortuous course, and that the medium accumulated in the pelvic cavity gives us an 'S' shaped shadow which is in the position of the lower sigmoid and rectum." She was given a week's preparation for operation; this consisted essentially of two cleansing enemas daily and a liquid and high carbohydrate diet consisting of pure stick candy.

Operation was performed October 21, 1929, under spinal anesthesia (Spinocaine) intentionally combined with a little nitrous oxide and ether. The scar of the old incisions was excised. Thick layers of fascia were fortunately and unexpectedly encountered, making cleavage lines easy to follow. There were dense adhesions of omentum to the anterior peritoneum and numerous small bowel adhesions intermixed with those of the omentum. These were separated with considerable difficulty and with a minimal amount of bleeding. A large mass of adherent

small and large bowel surrounding the sinus tract practically filled the pelvis. This was separated after laborous dissection. The tract (which had been previously injected with methylene blue) was dissected out and found to extend from the skin at a point about two inches above the symphysis pubis to a point in the lower sigmoid, and was about six inches long. The bladder was adherent against the tract and was carefully dissected away. The question arose as to the best procedure to use in closing the bowel at the point of exit of the sinus. It was decided to tie off the sinus at the site of exit with chromic gut and excise with a cautery. This was done and the stump covered by folding over the bowel wall with Lambert sutures and covering the whole area with a tag of fat from an adjacent loop of sigmoid. The loop was perfectly mobile and there seemed to be little danger of kinking causing obstruction. It was then possible to invaginate the sigmoid with the little finger through the gut at the point of operation, so I concluded there was small likelihood of obstruction, although I realized the probability of some degree of stricture. The bowel wall was only slightly thickened and not a great amount of induration—nothing like what one would expect. A penrose drain was placed in the left pelvis, taking care not to allow it to rest against the operative field. The wound was closed in the usual manner of repairing a ventral incisional hernia. Convalescence was uneventful and the patient left the hospital in about three weeks. For about a year she remained well and seemed to have secured a complete cure.

DISCUSSION

Little can be found in the medical literature concerning cases of this kind. As to the etiology, one would think of: (1) A tubo-ovarian abscess, or any other type of pelvic inflammation, in which drainage has caused mechanical irritation with a dissolution of bowel wall. This would be more probable if hard rubber was used, or if drainage tubes were left in too long. The reaction to the tube—a foreign body—would materially affect the development of a sinus. (2) An infection in the wall of the large bowel such as occurs in diverticulitis. Here again special care should be exercised in the placing of drainage and the type of tube employed. (3) Trauma to the gut with a resulting break in the wall. (4) Other conditions such as ulceration or malignancy. It seems probable that the question of the development of such a sinus hinges around three factors; the presence of inflammation in the wall of the gut, a break in the wall of the bowel—mechanical or otherwise, and the drainage tube, for any sudden dissolution of bowel wall in the unopened abdomen, or the abdomen which has been tightly closed, would likely give rise to a spreading peritonitis. In my experience I have observed that many things can and do happen with unexpected results—favorable or unfavorable—in surgery of the lower abdomen and pelvis. I recall a case of pus-tubes in a negro woman in which the structures in the pelvis were almost indistinguishable one from another; I inadvertently opened the sigmoid with widespread soiling of the operative field. The wound in the gut was closed with two rows of intestinal suture and the operation completed. The third

day after operation she began to discharge feces through the wound, in four days this discharge ceased and her subsequent recovery was entirely uneventful. At no time did she show any evidence of peritonitis. That was about a year ago. It is a little beyond my imagination to conceive of a fecal fistula of the sigmoid plastered against the anterior abdominal wall, and then the sigmoid receding to its approximate normal position leaving a sinus tract six inches long. It might occur.

The symptoms are those of adhesions (as varied as they might be) and the presence of a discharging sinus. The diagnosis is, of course, obvious, especially when methylene blue is injected or an opaque medium injected with subsequent X-ray studies. The mere presence of feces and gas does not give sufficient information as to the real condition of affairs.

Treatment should be that of removal of the sinus tract and proper closure of the gut so as to prevent the possibility of a reopening with peritonitis. It was a problem to determine just what to do after dissection of the sinus. Rankin of the Mayo Clinic, has operated on several such cases and has performed preliminary cecostomy before attacking the diseased condition. This might seem to be a bit radical but it is probably the most reliable method of treatment to get a complete cure. Several procedures suggest themselves either with or without preliminary cecostomy: (1) A Milulicz-Mayo type of resection, provided the bowel can be sufficiently mobilized as to permit delivery of the loop through a left incision without undue tension on the gut, especially the distal portion. (2) A tube resection, using the technic recently described by Rankin, does away with the disadvantage of a three or four stage operation and the presence of fecal drainage through the proximal loop on the abdomen. The risk of this operation is doubtless greater than a graded type of resection. (3) Excision of a piece of bowel surrounding the sinus exit and immediate closure is attendent with even greater danger. (4) The sinus exit might be treated similarly to that of an appendix stump, but the probabilities are that there will be too much induration and thickening of the bowel wall. (5) The method used by me gave the patient good results for a year's time. In any method the dangers of stricture, leakage and peritonitis with possible recurrence of the original condition should be borne in mind.

SUBSEQUENT DEVELOPMENTS

About a year following this operation she returned complaining of (1) symptoms suggestive of a hidden abscess, and (2) symptoms of a low partial obstruction. In December I evacuated an abscess of the abdominal wall and following this she remained free of the first group of symptoms; those of a partial obstruction persisted, however. X-ray studies following barium enema showed a normal colon with the exception of a stricture in the lower sigmoid—the stricture appeared to be only slight. In the past three months she has lost about 35 pounds in weight. She was again hospitalized and prepared for laparotomy

similarly as before. Operation was performed April 11 under spinal anesthesia (Neocaine) intentionally combined with a little ether. The old abdominal scar and the umbilicus were excised. There were dense adhesions of gut and omentum against the anterior abdominal wall. These were loosened with some difficulty and the sigmoid located. There was a large indurated mass about the size of the fist in the sigmoid well above the rectum. Clinically this was carcinoma. Few glands could be felt. It was debated whether to do a tube resection or a Mikulicz. After manipulation it was found that it was possible to mobilize the bowel sufficiently to do the latter. Another incision was made to the left of the rectus muscle and the loop of bowel brought out through this, doing a Mikulicz-Mayo type of operation. The mid-line incision was closed in the usual manner. The second stage was done several days subsequently and she now has a clamp on the septum. Convalescence has been uneventful and I expect a recovery. The pathological report was that of a thick inflammatory reaction with marked stricture of the bowel, no evidence of malignancy.

SUMMARY

Such cases are rare. I believe it is the better policy to do a Mikulicz-Mayo resection without preliminary cecostomy, but with careful pre-operative preparation. Careful studies should be made in order to determine just what condition exists. I consider it important that the patient have at least a week's preliminary treatment in the hospital, and lay stress on a thorough cleansing of the bowel with daily enemas and the use of a high carbohydrate diet.

Demonstration by lantern slides followed.

SURGERY OF THE BIRTH CANAL

Dr. B. J. Lawrence, Raleigh

Surgery of the Birth Canal, at once directs one's attention to a study of the pathology and surgical relief of conditions pertaining to the lower female generative organs.

Most of us who operate are very familiar with the various types of inflammation, both acute and chronic, which occur in the female pelvis. There are also tumors, both benign and malignant—and a number of acute emergencies occurring there, many of which would occupy all the time allotted to us. But it is not the purpose of the essayist in this paper to deal with pathology and the relief of pathology within the pelvis.

It is my purpose to invite you to think with me for a brief moment of some pathology occurring at the time of or following child-bearing and along the external birth canal.

I do not wish to burden or tire you with a consideration of rare and uncommon conditions which are seen only occasionally—on the other hand we are to consider pathology which every doctor sees almost daily. In fact, we see these conditions so often and they occur so often that they become "commonplace" and therefore we often fail

to give them the very serious concern which they warrant. The external birth canal is a common site for: First, cancer. Second, hemorrhage, at or following delivery. Third, inflammatory processes and abscess formation and of course GC and luetic infection. Fourth, injury to the bladder and rectum and uretheral caruncle. Fifth, pruritis vulva and dyspareunia. Sixth, laceration of the cervix and perineum and these are often associated with cystocele, rectocele and prolapus of the uterus.

Hemorrhage from the birth canal (not from the uterus proper) is usually due to lacerations and when the lacerations are repaired the hemorrhage stops. However, in one case of serious hemorrhage into the vaginal wall and vulva with no apparent or visible laceration, the hematoma reached the size of a very large cocoanut and the hemorrhage was not easily controlled. Regarding infections in this region, of course one could write at great length regarding the various infections occurring in the vagina, cervix and pelvic area, but it is not my purpose here to discuss pathology resulting from these infections nor are we to consider GC or luetic infections. They should occupy a chapter all their own. Injury to the bladder and rectum are very apparent and should be easily diagnosed. They should be repaired promptly. If the repair is successful all the better, if not, the patient should be instructed that she should have the repair work done later. Uretheral caruncle is usually seen in elderly women and is easily removed. Pruritis vulva is not uncommon and it is very persistant and very annoying to both the physician and to the patient. Many and various drugs have been tried for its relief. Some operations have been done for the relief of this condition, usually with little success. I am sorry that I do not know of any drug that is specific. In the words of a famous gynecologist let me say, "nearly all the drugs in the pharmacopea and some operations have been prescribed for the relief of pruritis vulva and in most cases with little or no success." It is my impression that any visible pathology in this area should be treated and hope that the patient goes to another doctor.

Dyspareunia is not common and should be managed as an individual case, depending on the circumstances surrounding that particular case.

Coming now to cancer, that dreaded and deadly foe of mankind. It still stands as one of the very few remaining oaks in the forest which has not fallen before the onward march of medical and surgical progress.

The cancer problem has occupied the thought and attention of many of the brightest and best minds that have ever joined our ranks —yea, whole societies have given their thought to it and volume after volume has been given wholly to its relief. Thus far we are not certain that we know anything about its relief of real value.

I heard a lecture recently giving a synopsis of the work—a rather complete report of the work done on the West Coast by Doctors Coffee and Hunbar. To be sure their report is very fascinating and interesting to listen to. Had I time I'd like to discuss it. However, for our purpose, I feel like our best efforts can and should be directed toward

prevention and very, very early recognition of cancer in any area. Various men differ as to the best methods to pursue once it has occurred.

I come now to the most common complication of them all, to the one surest of relief—viz., those having to do with lacerations of the cervix and perineum.

I have said before and I now think that fully 70 to 75 percent of all general surgery done in North Carolina was for appendicitis or that which might be classed as gynecology—and no small part of gynecology is the result of injuries directly or indirectly connected with child-bearing and a large percent of such injuries have as their background trauma in the birth canal.

I shall not attempt to describe any particular operation or technique for the repair of lacerated or erroded cervix. Many fine operators and splendid surgeons would differ widely as to technique and methods. But on one point I think all are agreed, viz., that they ought to be repaired. One could write at much length giving reasons; certainly I think no one will dispute that many otherwise fine women and splendid mothers have been almost incapacitated, rendered unhappy and irritable and uncomfortable as a result of so commonplace occurance as an unrepaired laceration of the cervix, which in turn leads to an errosion, leucorrhea, renders abortions in subsequent pregnancies more common, and I think these unrepaired lacerations are by far the most potent single cause of cancer.

In my judgment a relaxed perineum with a tendency toward or an actual rectocele is the cause of many vague symptoms which can not be explained otherwise. I think a great many women who are sick or think they are sick, who are unable to sleep, with their digestion upset as a result of a shot nervous system, will be found to have lacerations in this area, and not a few are associated with cystocele and uterus prolapsus in varying degrees—certainly unless there is a very distinct contra-indication, all of these cases ought to be operated upon. The successful management of and an operation upon these prolapsus cases gives a great deal of satisfaction and relief. Among one's warmest friends and most grateful patients are these old women when they have been relieved. No patients except those having a visical fistula or a complete tear of the sphincter-ani are quite so grateful as these. They are timid, most of them, they go on for years, many of them occur after they are old and they think they are too old to be relieved or they feel a delicacy about mentioning it. Many of them think it is closely akin to cancer and a disgrace, therefore they don't consult the doctor. They feel that they can't stand the expense of it, and they just wonder if, after all, the relief is worth the effort. In my judgment this ought not to be. These conditions can and ought to be relieved. Now there are certain well recognized principles in the handling of these prolapsus cases which should not be violated or if at all, rarely so. And one of the most important things is that the best results are obtained from the vaginal type of operation. Some men are still trying to suspend a prolapsed uterus or they do that which is worse, viz., an abdominal hysterectomy. I am satisfied that

the majority of the more experienced surgeons have concluded that the abdominal route is not the best way to attack this type of pathology—and yet during the last ninety days I was requested by a fine man, a splendid physician, to attempt to correct a prolapsus by suspending the uterus in the belly. I am convinced that such a procedure is a serious mistake and to do an abdominal hysterectomy is worse. What then should be done in such a case? To begin with, one must understand that to remove this condition permanently that child-bearing must be ended. If she has passed the menopause, all the better. If not, that problem must be dealt with first—with this out of the way in my own cases I proceed to do a combination interposition vaginal hysterectomy with repair of the cystocele and rectocele, using my own modifications of one of the well-known types of technique—I often wonder why men sometimes consider this type of surgery so difficult—when in reality it is not. However, it is tedious, requiring patience, familiarity, and a certain degree of efficient technique.

Finally, I wish to emphasize: A. These late complications do exist. B. They are very common, so common they are often overlooked. C. They are a very potent cause of symptoms. D. They do predispose to cancer and should be recognized and removed promptly. E. In most every case they can only be relieved by surgical aid. F. That a prolapsus should very rarely, if ever, be attacked from the abdomen, but that in almost every case one should use the vaginal route. G. That a combination interposition vaginal hysterectomy should usually be used and in these cases having followed such a procedure we may expect relief and a most grateful patient.

INDICATIONS FOR EXCISION AND GASTRECTOMY AND RESULTS FOLLOWING OPERATION

Dr. Addison G. Brenizer, Charlotte

Case I. In July, 1917, before going into military service in September, we did a palliative gastro-enterostomy, merely to relieve obstruction, in a man 52 years old, who had been vomiting persistently, had lost over fifty pounds in weight, was pale and almost entirely exhausted. There was a mass, not only felt but seen in the epigastrium and right hypo-chondrium. He vomited food and barium of the day before and showed by X-ray studies a very large stomach with a little barium passing into the duodenum and an irregular outline of the antrum, a crater, the apex of which was along the lesser curvature at the pyloric canal. At operation there was a mass the size of a lemon in the antrum up to the pyloric canal, with the cap of the crater toward the lesser curvature. The exploration was quickly terminated with a gastro-enterostomy. A diagnosis of cancer with metastatic lymph glands was made. The patient never vomited again, greatly improved and gained weight during three weeks in the hos-

pital. My goodbye to him when he left the hospital was a final one and with more feeling than he ever suspected. Two years later after the war, this same man, in the bloom of health and a gain of sixty pounds, returned to see me, to thank me for curing him. There was no mass to be felt; X-ray studies showed a rapidly emptying stomach of normal size and the barium passed out both by the pyloric canal and gastro-enterostomy opening. The man is still living and well, and has paid little or no regard to his diet since three or four months following his operation. In the light of now-a-days I should have felt a confidence in his outcome, if I had considered the location of the ulcer and had made a frozen section of one of the lymph glands along the lesser curvature. Almost every surgeon I have talked to, has recited a similar surprising experience.

Case II. In March 19, 1924, a man, age 33, was rushed to the hospital on account of having been struck with violent pain in his right upper abdomen and right side. He doubled up with severe pain and rigidity of his abdomen, which he in no way relaxed until he was under full anesthesia. This was Wednesday afternoon and he had just been dismissed from the hospital Monday after the third Sippy treatment of eight weeks each and had eaten nothing but eggs, milk and very light cereals. There was considerable fluid in the right hypochondrium and a hole nearly the size of a ten-cent piece, and an indurated area the size of a dollar on the anterior surface of stomach, extending to the lesser curvature. There were enlarged glands along the lesser curvature. For two reasons the indurated area was excised with a cautery, first to gain more suple tissue for enfolding, and second, to get rid of the wide spread lesion. A considerable section was thus removed and when wound was closed the antrum was very much narrowed and the pyloric canal encroached upon. With compress in the hypo-chondrium and change of gowns, gloves and instruments, a gastro-enterostomy was done. The wound healed per priman and the patient made an uneventful recovery, taking a full diet in two months. He has not had the slightest complaint in over six years. Fig. 1 and 2, Case II., show the stomach during his last Sippy treatment with the ragged area located in the antrum, near the pyloric canal and a small crater continuous with the lesser curvature and four years later a narrow antrum with serrated outline along the lesser curvature. Practically all of the barium is passing through the gastro-enterostomy opening.

After these resections of either gastric or duodenal ulcers with gastro-enterostomy or pyloroplasty it is almost impossible to draw any conclusions from X-ray studies beyond the proper emptying of the stomach and possibly the absence of a definite crater. Compare Fig. 3 of a resection of duodenal ulcer and pyloroplasty.

Case III. May 21, 1924, a woman, age 67, who for years suffered such violent pain and nausea on taking food, occasionally relieved by washing out the stomach, but as frequently requiring morphine, begged for relief by operation. She knew and was repeatedly warned that her general condition, rheumatism and leaking heart, already twice

decompensated, made her operation a risk. She preferred the risk, and death even, to life as it was. X-ray studies showed a collar-button crater from the posterior surface of stomach in the upper part of the corpus and near the lesser curvature. This crater was a fixed point and did not shift with the movements of the stomach. The lesion did not show at all in a first series of X-rays and was only brought out on placing the patient in the oblique position. Fig. 4.

The operation was done with local anesthesia and gas. The ulcer was found on the posterior surface of the upper corpus, intimately attached to the pancreas. The fixation to the pancreas and the drag down upon it, as well as the inflammatory reaction of the ulcer, evidently caused the severe pain. There were enlarged glands along the lesser curvature. Access was easily made through the gastro-hepatic omentum, the ulcer crater separated from the pancreas, the pancreas gently cauterized and closed with catgut sutures. The ulcer resected and stomach closed. At this stage of the operation and without warning save for the risky heart condition, the patient's heart gave way and she died shortly after the abdominal incision was closed. Pathological section of the ulcer and gland showed no malignancy.

Case IV. A man 62 years old, March 25, 1922, who had had dyspepsia and colitis for 20 years. X-ray pictures taken several years previously showed gastroptosis and slow motility; more recent examination of gastric contents showed absence of hydrochloric acid. There was more and more gastric distress and all foods disagreed with him. X-ray studies revealed a small stomach with feeble contraction waves, marked reduction of cavity, ragged outline of antrum along the greater curvature. The man was losing rapidly in weight and color. At an exploratory operation, the walls of the whole antrum and corpus were thickened and hard; the picture of the so-called leather bottle stomach. There were no glands. After the exploratory operation he was seen in consultation with Drs. Kelly and Burnam who advised radium and X-ray and Dr. Finney who suggested the possibility of a total or subtotal gastrectomy. The patient chose the easier and useless route of treatment with X-ray and radium. He rapidly reached the point where he could not be fed by mouth on account of extreme gastric distress and aversion to food. For the purpose of feeding a duodenostomy was done and in this way he was fed until he died. Conditions of living could not have been worse for him if a gastrectomy had succeeded and if he had died, he would have been relieved of months of suffering and a useless life.

Cases V and VI. Two cases, one of a man 64 years old, January 8, 1921, the other a woman 69 years old January 30, 1924. Both complained of gastric distress, both had lost weight, the man, 42 pounds; the woman had just had a voluminous gastric hemorrhage. X-ray studies in the man failed to disclose a definite lesion. At operation on both cases there was an indurated area the size of a dollar in the anterior wall of the antrum, with a large shallow crater. In the woman the induration extended up to and embraced the lesser curvature; in the man, neither curvature was involved, the lesion was nearer

the greater curvature. In both cases there were a few glands along the lesser curvature near the pyloric canal. A gastrectomy with resection of the whole antrum, about half the stomach, was done in both cases. Pathological section in the one case, the man with the ulcer frankly and freely on anterior surface of the antrum showed malignancy; in the other case, the woman with the ulcer nearer and embracing the lesser curvature showed no malignancy. Both cases are living and well. The woman after six years, the man after nine years. Since two months following their operations both have eaten practically a full diet, have regained weight and color and have no gastric distress. X-ray studies following gastrectomy show the stomachs while somewhat reduced in size, still capable of accommodating themselves to the intake of a full diet and a corresponding restoration of the patients to their normal weight and color. The resected stomach exhibits a motility just as vigorous as that following about 30 per cent of gastro-enterostomies, emptying time less. Compare Figs. 5 and 6.

Out of 9 cases where gastrectomy was done, 7 cases are now living and well. Two cases are dead after fourteen and eighteen months respectively from metastasis. Even the two cases dying of metastasis and cachexia were able to take their meals with comfort and died without any abdominal distress.

Cole reports 26 cases of ulcer of the corpus gastrica where 11 were treated with gastric resection, 10 with excision and 5 with gastro-enterostomy without excision. Of the 11 treated with gastric resection 6 lived to leave the hospital and 5 died while in the hospital. Of the 10 treated with excision, 2 were mucosal ulcers and 1, as proved by microscopic examination, was already a healed ulcer. Of the remaining 7, 2 died, 2 were worse, 1 was improved and 2 were said to be improved. All of the 5 cases treated with gastro-enterostomy lived but as we can compare each of these with a similar case treated medically without gastro-enterostomy, the question arises: did the ulcer heal because of the gastro-enterostomy or in spite of it?

Cole's conclusions are as follows:

1. We must study each regional type of ulcer separately and therefore this communication has been confined to presentation of corporic ulcers.

2. Mucosal ulcers are so superficial and transitory that they should not be included in a consideration of whether or not to operate.

3. If an ulcer has distorted a stomach almost beyond recognition such a distortion becomes a complication and that case is definitely surgical. No case of this character is included in the 26 cases presented herein.

4. Ulcers that occur nearer the greater curvature than the lesser should be considered ulcerations in carcinomatous areas and not benign ulcers.

5. Any ulcer that increases in size, after the initial avulsion of the crater, should be considered malignant, or at least not a simple or benign type of ulcer. This increase in size must be determined by comparing roentgenograms made at the end of one week in bed, two weeks in bed, and if necessary at the end of a third week in bed, care

being taken to observe that the patient is in the same posture during each examination.

6. The mortality of gastric resection for ulcers of the corpus is so extremely high that this procedure is not justified as a method of treatment for corporic ulcers.

7. Excision of a small ulcer high up on the corpus may be successful. Excision either with cautery or knife, of an ulcer near the sulcus angularis is contraindicated as it usually results in a gastric deformity requiring subsequent surgical procedure.

8. Gastroenterostomy for corporic ulcers is merely an excuse to do something. These ulcers heal in spite of the gastroenterostomy rather than because of it.

9. From an analysis of these facts, it is evident that surgical procedure is definitely contraindicated in all cases of corporic ulcer and that it should be resorted to only in such cases as are known to have gradually increased in size during a three weeks' period of rest in bed under roentgenologic control, or which in that same period of time have definitely failed to diminish in size. In this latter group of cases, surgical procedure should only be resorted to, however, in the event that the symptoms are so severe that the patient demands operation. In these cases, it must be borne in mind that the same constitutional conditions which prevent the healing of ulcers, such as arterial sclerosis, make the patient an unfavorable surgical risk.

I am persuaded that Cole's observations and conclusions from the point of view of a roentgenologist are accurate and tangible and that they can be applied practically in the determination of not only whether to operate or not, but what operation to do. It seems to be a fact that almost all ulcers may be classified as corporic, prepyloric and postpyloric ulcers and that they occur in the ulcer-bearing area along the lesser curvature. Ulcers in these locations are inflammatory and not malignant. Ulcers elsewhere in the stomach, particularly near the greater curvature, may be malignant and must be considered as such.

When such ulcers extend to enormous size, as they sometimes do, so as to produce lameness and obstruction of the stomach, as in the case first cited, Case I, there is no other alternative except to give relief of obstruction by gastro-enterostomy; and in an ulcer of such size the difficulty and uncertainty of determining its original location and whether or not it be malignant, may be impossible. The diagnosis may be aided by a frozen section of one of the glands. Doubt as to the diagnosis may still remain and force the question of gastrectomy. It is generally accepted from experience in the hands of most operators and proven by post-operative X-ray studies that "V shaped" resection and "Sleeve" resection too frequently leave a deformed stomach with mechanical function interfered with. This is particularly true, when resections are done along the lesser curvature near the sulcus angularis. In these cases, a gastrectomy is preferable. When ulcers are located outside the ulcer zone, that is not in the antrum along the lesser curvature, excision is indicated, because of the possibilities of serious trouble

inherent in the ulcer, namely perforation; case II, Mr. S., hemorrhage; case VI, Mrs. S., deformity with perigastric adhesions; case IV, Mrs. Sholtz, narrowing of lumen by pressure of mass and cicatricial contraction, and most important malignant degeneration, case V, Mr. R.

In the above-cited cases, the large obstructing ulcer at the pylorus along the lesser curvature healed under gastro-enterostomy; the perforated ulcer on the anterior surface of stomach under resection and gastro-enterostomy, that on the posterior wall, adherent to the pancreas was resected, the two cases, one of the woman with hemorrhage and the other of the man, both ulcers located in the antrum on the anterior wall, gastrectomy was done. The choice between resection and gastrectomy is determined largely by the amount of the wall to be resected and the resulting deformity and interference with motor function. Where such a large area is to be resected, gastrectomy is preferable; also where the ulcer is located outside "the ulcer bearing area" and where the chances of malignant changes are far greater, gastrectomy is indicated. Finally and in repetition the question of operation and what operation, is determined as follows:

I. Ulcers of the antrum and pylorus along the lesser curvature and duodenum are benign and frequently heal under medical treatment. Dangers are perforation, hemorrhage and obstruction.

II. Ulcers on the gastric side of the pyloric canal and outside the "ulcer bearing area" may or may not be malignant. The possibility of malignancy requires excision or gastrectomy.

III. Excision for malignancy should be wide and extensive and should therefore be extended into gastrectomy.

IV. The function of the stomach following gastrectomy is comparable with that following gastro-enterostomy and superior in every way to that following "V shaped" and "Sleeve" resections.

DEFORMITIES AND OBSTRUCTION OF THE DUODENUM

Addison G. Brenizer, M.D., Charlotte

The usual causes of deformities and obstruction of the duodenum are ulcer, gall bladder and periduodenal bands and membranes, diverticula of the duodenum or first loop of jejunum and compression of the duodenum by mesenteric pedicle of the superior mesenteric or median colic arteries.

There is a well defined pathological anatomy and disturbed function produced by these conditions and in the cases of obstruction a clear-cut clinical picture, which X-ray studies may confirm with an accuracy of 90 to 95 percent; even in the cases of ulcer, adhesions from the gall bladder and diverticula, though the clinical picture is not infrequently confusing, persistent X-ray studies may finally clear up the diagnosis in almost every case.

A. ULCER OF THE DUODENUM

The typical history of pain or discomfort in the epigastrium or right hypochondrium, when the stomach is empty or emptying its acid contents, with periods of relief and exacerbation of symptoms persisting for months or years and frequently in young, healthy-looking individuals, is familiar to all. The X-ray studies portray varying shadows in the course of development of a callous ulcer from duodenal spasm to well defined filling defect when the ulcer is definitely formed. A progressive obstruction in the second or third portion of the duodenum may hasten ulcer formation and ulcers may form below the duodenal cap.

Case 1. Mr. R. H., aged thirty-five, with typical symptoms of duodenal ulcer, who, in spite of irregular Sippy and antacid diet, belladonna and alkalies, had profuse vomiting of blood, improved and hemorrhage ceased after medical treatment. Filling defect persisted (Fig. 1), with gastroenteroptosis and dilated duodenum. Finney pyloroplasty with resection of ulcer; pathological report of malignant ulcer (discredited). Symptom-free for eighteen months, usual confusing shadow-graft following pyloroplasty (Fig. 2). Sudden recurrence of symptoms and acute perforation; perforation cauterized and closed, gastroenterostomy to relieve tension in duodenum. Symptom-free for fourteen months; recurrence of pain in epigastrium and tenderness, ulcer at gastrojejunal anastomosis (Fig. 13). Free of symptoms for year after short treatment with belladonna, alkalies and antacid diet. Impression: a duodenojejunal anastomosis followed by pyloroplastry and resection of ulcer would have forestalled recurrence of ulcers.

Case II. Mrs. M., aged sixty-two; pain in epigastrium, occasional vomiting. Two X-ray series with barium enemata and visualization of gall bladder, showed only gastroenteroptosis and moderately dilated duodenum. Improvement of short duration on belladonna, alkalies and antacid diet, attacks of pain in epigastrium recurred from time to time over a period of four months' observation; finally passed blood by bowel and vomited blood. X-ray study showed dilated and deformed duodenum (Fig. 4). At operation dilated duodenum, ulcer in second portion of duodenum, relieved of pain by gastroenterostomy for eight months to date. Impression: Same relief of symptoms and likely more enduring comfort by duodenojejunostomy.

Case III. Mr. M., aged forty-nine, vomited for twenty-four hours voluminously, small bowel movements after repeated enemata, arrived at hospital at night under diagnosis of partial intestinal obstruction. Moderately distended abdomen, scar of former appendectomy, slight tenderness over right hypochondrium, temperature 101°F., pulse 82. Blood pressure 130/70, white blood corpuscles 19,800, few white and red blood cells in urine. Cystoscopy negative, X-rays of gastrointestinal tract. Diagnosis: duodenal ulcer perforating (Fig. 5). At operation gall bladder bound closely to duo-

denum, containing mucopus and stones. Liberation and removal of gall bladder. Complete relief.

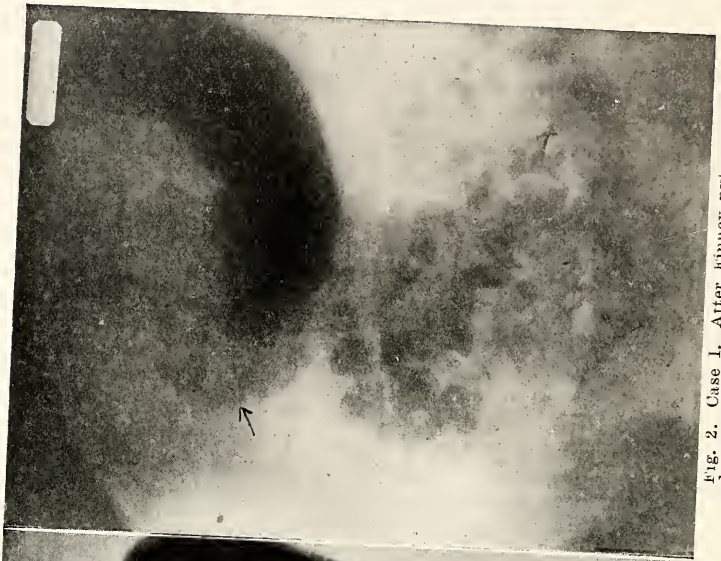

Fig. 2. Case I. After Finney pyloroplasty and resection of ulcer, dilatation of duodenum, recurrence of ulcer and perforation. Cauterization and closure of ulcer and gastroenterostomy. Recurrence of ulcer from stasis and tension likely prevented by duodenojejunostomy and resection of ulcer.

Fig. 1. Case I. Persistent ulcer after hemorrhage; ulcer, clearly visible and palpable at operation, resected. Finney pyloroplasty.

Case IV. Mr. A. B., aged thirty-five to forty-five during examinations. At one time symptoms of duodenal ulcer, relieved by belladonna, alkalies and antacid diet; at another time of gall bladder; at another colitis with gas, soft stools or diarrhea with some mucus, always better after thorough purging with salines and on diet with minimum red meats and roughage. Local roentgenologist diagnosed duodenal spasm and spastic colitis; Dr. Fred Baetjer

(Baltimore) appendicitis with duodenal spasm; Dr. Pancoast (Philadelphia) adhesions from cholecystitis or duodenal ulcer, poorly drained appendix. The following are the conclusions of Lewis Gregory Cole (New York) after a most elaborate and protracted X-ray study:

From a study of these roentgenograms, I believe one is justified in making a negative diagnosis of cancer and ulcer of the stomach and a negative diagnosis of the cap. There is no pyloric stenosis, no functional gastric retention; in fact, the stomach empties more rapidly than usual. There is apparently some irritation, as there is considerable tendency to spasm of the cap and at times, the peristalsis of the stomach is exceptionally vigorous.

There is a diverticulum of the first part of the descending duodenum. (This diverticulum was never found before in the several X-ray studies. Was it acquired or was it always present during these former studies?) This lies to the left of the duodenum and apparently anterior to, and in close relation to the junction of the common bile duct and pancreatic duct.

I find no evidence of calcified gallstones. The gall bladder did not fill with the dye, although this was given orally on two suc-

Fig. 3. Case I. After closure of recurrent and perforated duodenal ulcer and gastroenterostomy. Marginal ulcer ½ in. median from arrow point, rapidly emptying stomach and colitis. Gastroenterostomy to be closed, followed by duodenojejunostomy.

cessive days. In our experience this is quite positive evidence that the gall bladder is diseased.

(What relation does the diverticulum bear to failure of the gall bladder to fill, located as it is in close relation to the junction of the common bile duct and pancreatic duct; what would be the difficulties of satisfactory removal at this location and if removed the chances of further obstructing the ducts and finally what are the dangers of such diverticula beyond a causative agent in the patient's discomfort?)

"I believe one is justified in making a negative diagnosis of a diverticulosis of the lower descending colon and the sigmoid colon. There is no evidence of diverticulitis. The appendix is patent, almost six inches long and apparently contains several small fecoliths. I would consider this a pathological condition of the appendix, but I do not believe it is by any means a surgical condition. There is apparently, a congenital veil or band of adhesions in the right hypochrondrium, which involves but does not obstruct the hepatic flexure of the colon.

(This patient with unfilling gall bladder, duodenal diverticulum, pathological appendix and hepatic adhesions remains unoperated on, relieved of the fear of perforating ulcer and ruptured appendix. What surgeon could resist operation on this case)

B. ADHESIONS FROM GALL BLADDER

Those cases are confused with duodenal ulcer as cited under Case III (Fig. 5), where a gall bladder visualization was not done either on account of the acuteness of the case or confidence in the diagnosis, when there was an apparent conformity between clinical data and apparent X-ray findings. An accurate diagnosis can usually be made when the X-ray studies are persistent, as in Case IV.

C. PERIDUODENAL BANDS AND MEMBRANES

The supramesocolic bands or membranes are confusing and probably can not be diagnosed clinically or by X-ray study with any degree of accuracy, and are found at operation under the diagnosis of cholecystitis and duodenal ulcer with adhesions. The inframesocolic bands and adhesions may be projected, as from the symptoms of persistent duodenal obstruction, without relief from position or posture and X-ray findings of a dilated and obstructed duodenum.

Case V. Mr. G., aged forty-eight, weight 106 lbs., loss of 40 lbs. in weight, pain in epigastrium, frequent attacks of nausea and voluminous vomiting, pale and weak. X-ray study showed dilated duodenum, dilated stomach with eleven hours gastric retention (Fig. 6). At operation bands of adhesions at terminal duodenum and rolling and narrowing of duodenum, dilatation of proximal duodenum. Duodenum liberated and anastomosis made between first loop of jejunum and inframesocolic duodenum. The patient never vomited again, was on a full diet in the course of three weeks, and

according to his own statement remains perfectly well, with a weight of 160 lbs., eating what and when he wants. He has remained well for six years. A defect in cap shown in X-ray and diagnosed ulcer was not found at operation as a visible and palpable ulcer.

Case VI. Mr. J., aged thirty-eight. This patient, lying on a stretcher, pale, thin, weighing 98 lbs., was shown before the local medical society with Mr. G., Case V, standing beside him. The contrast was startling. This case had lost about 50 lbs., had severe pain shortly after taking food, frequent attacks of nausea and vol-

Fig. 5. Case III. Artefact produced by gall bladder adhesions. Relieved by liberation of gall bladder from duodenum and cholecystectomy.

Fig. 4. Case II. Dilated and deformed duodenum, ulcer in second portion, upper bulging near cap an artefact, after violent hemorrhage. Two former X-ray studies negative. Relieved by gastroenterostomy. Stasis and tension in duodenum would have been better provided for by duodenojejunostomy.

uminous vomiting. Had become a morphine addict. He showed a four plus Wassermann reaction. X-ray showed gastroenteroptosis, markedly dilated duodenum in all pictures, gastric retention of

twelve hours or more (Fig. 7). He had been receiving antiluetic treatment. At operation there were numerous adhesive bands around the terminal duodenum, this portion was thickened and hard and a definite constriction band was felt in the walls of the intestine, the proximal duodenum markedly dilated. An inframesocolic duodenojejunostomy was done. After operation no more vomiting, there was a gain of 30 lbs. in the first month, in spite of an ever positive Wassermann reaction and a continuation of the morphine habit. In course of time the patient developed paresis and finally died with terminal pneumonia, but never vomited again.

Case VII. Miss C. M., aged thirty-two, thin, pale, frequent attacks of nausea and voluminous vomiting. X-rays showed moderately dilated duodenum and stomach, gastric retention for eleven hours. A gastroenterostomy was done. After operation there was frequent vomiting of large quantities of bile stained fluid, so-called vicious circle. The vomiting was relieved by elevating the foot of the bed. Vomiting frequently occurred during six months, and there was no improvement. Repeated X-rays showed markedly dilated duodenum and stomach and prolonged gastric retention (Fig. 8). At the second operation the terminal duodenum was found to be surrounded by adhesions and narrowed and the terminal loop of jejunum used for gastroenterostomy carried to the left, made a sharp angle at the duodenojejunal junction. A duodenojejunostomy was done. There was no more vomiting, a rapid gain in weight, and marked relief, but multiple neurotic complaints, such as irregularity of menstruation, pain in hips, etc. X-rays after duodenojejunostomy showed stomach emptying in four hours and rapid passage into cecum (Fig. 9).

Case VIII. Mr. H., aged thirty-four, with pain, frequent nausea and vomiting, loss of appetite and weight, relieved by liberation and unrolling of terminal duodenum from bed of constricting bands, without duodenojejunostomy (Fig. 10). There is a possibility of recurrence of adhesions, though patient remains well for nearly two years.

Case IX. Mrs. McD., aged forty-two, thin, pale, frequent attacks of voluminous vomiting. History of possible tuberculous peritonitis when a child; formerly had cholecystectomy. X-rays showed dilated stomach and duodenum with nine hours' gastric retention, gastroenteroptosis. At operation there were multiple bands at terminal duodenum, marked angulation at duodenojejunal angle, and membrane holding terminal duodenum and proximal jejunum together. At operation, that duodenum and stomach relieved without failure of obstruction, the duodenojejunal angle was liberated from bands and membranes and also from the ligament of Trietz and the anastomosis made between gastric antrum and the duodenojejunal junction. The patient improved, gained weight, but soon had an occasional return of attacks of vomiting and some diarrhea. The stomach and duodenum now empty about as fast as the barium meal can be given (Fig. 11). The gastric contents rapidly fills the small intestine and by rapid overloading, vomiting

Fig. 7. Case VI. Dilatation and fixed obstruction of terminal duodenum by extrinsic adhesions and intrinsic stricture (4 + Wassermann reaction) completely relieved by duodenojejunostomy.

Fig. 6. Case V. Dilatation and deformity of fixed obstruction of duodenum by adhesions and rolling of terminal duodenum. Nitch in cap diagnosed ulcer, not visible and palpable at operation. Completely relieved by duodenojejunostomy.

recurs. Impression: At the operation a duodenojejunostomy would have sufficed. The question is now before us of taking down the gastroenterostomy and making a duodenojejunostomy.

D. DIVERTICULA OF THE DUODENUM AND JEJUNUM

Case IV, under the heading of duodenal ulcer, illustrates the confusion in diagnosis in some of these cases.

Case X. Mr. R. A. D., aged sixty-eight, who forty years ago had several attacks of pain, nausea, occasional vomiting, gas and soft stools, which was empirically diagnosed as bilious colic and for which he was given calomel and salines and relieved. During such

an attack eighteen years ago, under the diagnosis of appendicitis an exploratory operation was advised and halted by his surgeon and friend, Dr. John Gibbon, who saw him in consultation with New York surgeons and advised a wait on account of atypical symptoms and uncertainty of diagnosis. To this day he occasionally has a

Fig. 9. Case VII. Rapidly emptying duodenum after duodenojejunostomy.

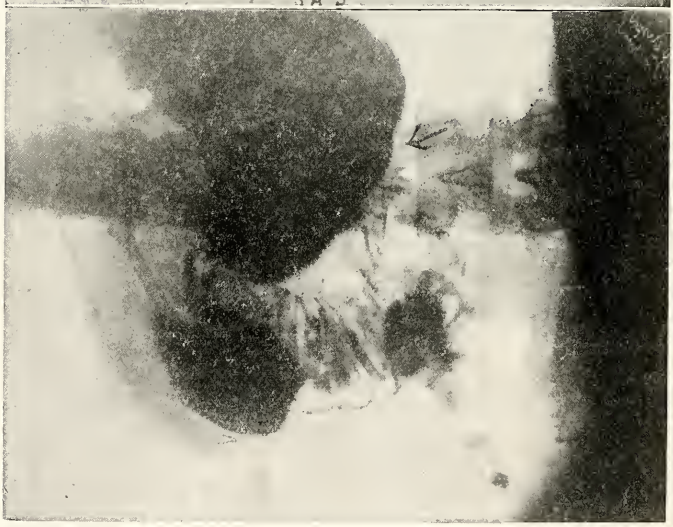

Fig. 8. Case VII. Markedly dilated duodenum after gastroenterostomy, so-called vicious circle, followed by persistent duodenal obstruction. Completely relieved by duodenojejunostomy at second operation.

little nausea and soft stools, quickly relieved by an oil purge. His physical findings, except for slight tenderness over the epigastrium during an attack, are negative. X-ray studies show a diverticulum involving the second portion of the duodenum, which is smooth in outline, freely movable, not tender to palpation and the barium meal

is seen to enter and leave the diverticulum during fluoroscopic examination (Fig. 12). The six-hour picture shows a small residue in the diverticulum after the stomach and duodenum have emptied (Cf, Figs. 13 and 14, Cases XI and XII.).

Case XIII. Mrs. McQ., aged fifty-two, 65 lb. loss of weight, slight gastroenteroptosis, pain and distress felt in epigastrium, nausea, attacks of vomiting and soft stools. Moderately dilated duodenum between attacks. Diverticula not found in roentgenograms, visualization of gall bladder negative. Operated on for prolapsus uteri with exploration of upper abdomen. Two diverticula found just distal to duodenojejunal junction, one size of lemon with all coats of the intestine and abundant separate blood supply from that of intestine with vessels branching separately from both layers of mesentery.

This diverticulum resembled largest Meckel's diverticulum I have seen, with a blood supply suggesting a congenital origin. The second diverticulum was small, thin walled and no such blood supply (Cases XI and XII, Figs. 13 and 14). The large diverticulum by location, adhesion and weight, when filled, produced an intermittent and partial obstruction at the duodenojejunal angle and produced the attacks of nausea and vomiting and partial obstruction of the duodenum.

E. COMPRESSION OF DUODENUM BY MESENTERIC PEDICLE OF SUPERIOR MESENTERIC AND MEDIAN COLIC ARTERIES (DUODENAL ARTERIOMESENTERIC ILEUS)

Case XIV. Mrs. B., aged forty-two, attacks of pain in epigastrium as well as pain in right lower abdomen, profuse menstruation, vomiting, elevation of temperature and leucocytosis, negative urine. Poor result with enamata. Brought to hospital as acute abdominal case and diagnosis of ovarian cyst. Was formerly operated on for tuberculous spine with bone graft and appendectomy. Abdomen flat, scar of former appendectomy, tenderness and definite resistence over cecal region. Soft mass over right adnexa, small mass over left adnexa. Diagnosis: Ovarian cysts right and left, partial intestinal obstruction. At operation ovarian cyst size of lemon on left side. Cecum down in right side of pelvis, filled with soft doughy fecal matter, ascending colon adherent to peritoneum, at site of former appendectomy. Colon liberated from abdominal wall, enucleation of left ovarian cyst. Patient vomited after operation large quantities of bile-stained fluid, in spite of good results following enemata on the second and third days, and continued to vomit in spite of the fact that the abdomen remained soft. After a large enema and turning the patient over on her abdomen with foot of bed elevated, there was a cessation of vomiting and a sudden movement of bowels, filling the bed. The patient was sustained on salt solution and glucose, given in frequent and large quantities intravenously during her vomiting. By the fifth day she was entirely comfortable and taking food. Impression: Duodenal arteriomesenteric ileus (acute dilata-

Fig. 11. Case IX. Castroenterostomy between detached duodenojejunal angle and stomach. Extremely rapidly emptying stomach, vomiting and colitis. Projected operation: Closure of gastroenterostomy and duodenojejunostomy.

Fig. 10. Case VIII. Slightly dilated duodenum. Duodenal obstruction relieved by liberation of adhesions and rolling of terminal duodenum. Operation of choice duodenojejunostomy to prevent recurrence of adhesions.

tion of stomach). Compare with Case VII (Figs. 8 and 9) and so-called vicious circle following gastroenterostomy.

Case XV. Mr. D., aged thirty-one. Attacks of pain in epigastrium, at times very violent, followed by frequent and voluminous vomiting of bile-stained fluid. Pale, loss of weight and weakness. Attacks, at first, spaced by months' time, but became more frequent. This case was followed over a long period with repeated X-ray studies between attacks, which studies showed a gastroenteroptosis with moderate dilatation of duodenum. Finally examined during an attack; posture failed to relieve him. Barium meals given him were vomited. By persistent giving of barium while under the fluoroscope, the duodenum was seen to dilate widely, peristalsis immediately became very active, a small amount of barium would pass

the terminal duodenum, quickly followed by violent antiperistalsis and rapid back-flow into the stomach, contraction of the stomach and vomiting. After many attempts a film was obtained (Fig. 15). At operation, the duodenum was dilated, there was a rolling of the

Fig. 13. Case XI. Diverticula in second portion of duodenum and in terminal duodenum. No obstruction, minor symptoms, not operated on. Similar case showed duodenal obstruction. Relieved by liberation of adhesions and resection of diverticula.

Fig. 12. Case X (Cf. Figs. 13 and 14). Large diverticulum of second portion of duodenum. Occasional pain and nausea, followed by diarrhea. Not operated on.

terminal duodenum on the peritoneum with a few light adhesions, the mesenteric pedicle of the superior mesenteric artery pressed tightly down on the terminal duodenum, and when lifted with the finger under it, could be felt to pull down on the finger with considerable weight. An inframesocolic duodenojejunostomy was done. The patient has experienced a complete relief of pain and vomiting

Fig. 15. Case XV. Marked recurrent dilatation of first and second portions of duodenum becoming more fixed. Compression by arterial pedicle of superior mesenteric artery and adhesions. Relieved by duodenojejunostomy.

Fig. 14. Case XII. Diverticulum of upper jejunum, rarely shown in X-ray studies. Diverticula in case occurred in upper jejunum as well as at duodenojejunal junction. (Cf. Fig. 13.)

immediately from time of operation to date, with absolute feeling of well-being and an appreciable gain in weight and color. Although but three months following operation his gain is still progressive.

Case XVI. Miss McL., aged twenty-eight. Pain over right back, right lower abdomen, attacks of violent vomiting. The right kidney felt in the region of the cecum. X-ray studies showed the cecum in the location of the pelvis. Diagnosis: Nephrocoloptosis. The kidney was fixed after the method described by Longyear, finding and employing definite fibers of crystallization as described under the nephrocolic ligament of Longyear. This operation was done ten years ago, the kidney remains in position, the urine is negative and the cecum occupies about its usual position. There have been no

more attacks of vomiting, the patient is in good health and comfort, except for slight pain in the right lumbar region. Impression; Duodenal stasis form dragging on duodenum and compression by mesenteric pedicle of median colic artery.

Case XVII. Miss T., aged twenty-three. Very thin, pale girl, complaining of marked constipation and great difficulty in emptying bowels, weakness; even talking is great effort and voice is almost lost. Gastroenteroptotic type, enormously dilated cecum and ascending colon entirely prolapsed into pelvis. Attacks of pain in epigastrium and continuous voluminous vomiting. At operation an enormously dilated cecum and ascending colon, six inches across transverse diameter with thickened walls and filled with doughy fecal matter was lifted out of pelvis and brought entirely out of incision. There was no parietal peritoneal attachment until the hepatic flexure was reached and the attachment here was a long loose membrane. The mesocolon was easily tied and severed and the entire cecum and ascending colon resected at the hepatic flexure, where a lateral anastomosis was done between the ileum and transverse colon, just distal to the hepatic flexure. There have been no more attacks of pain in the epigastrium or vomiting, but a gain in weight, strength and color and a return of a strong voice. The girl has been working for two months following her operation, and has applied to the hospital for nurse's training. X-ray studies following operation show a ready passage of barium through stomach, duodenum and transverse colon with delay in descending colon and sigmoid. She still requires petrolagar for abundant bowel movements. Impression: Duodenal stasis from compression by mesenteric pedicle of median colic artery.

DUODENAL OBSTRUCTION

In the seventeen cited cases there will be noted that pain, attacks of vomiting, loss of weight and color were the main characteristics in II, namely, Cases III, V, VI, VII, VIII, IX, XIII, XIV, XV, XVI, XVII, and to a milder degree in Cases I and II. Cases I and II were both of the gastroeneteroptotic type, both vomited blood. X-ray studies showed the ulcer and a dilated duodenum. Case I had a recurrence of ulcer and perforation after closure of second ulcer and gastroenterostomy; Case II showed ulcer below the duodenal cap and was relieved by gastroenterostomy. It was suggested that duodenojejunostomy followed by resection of the ulcer should have been the operation of choice in both cases, to drain more directly the dilated duodenum and would likely have prevented the recurrence of ulcer and perforation in Case I, and have secured more permanent results in Case II. Case IX was overdone, and the effect produced was that of combined duodenojejunostomy and gastroenterostomy. Case VII was a failure after gastroenterostomy, and was relieved after additional duodenojejunostomy. Both cases should have received a duodenojejunostomy only, at the first operation. Case III was frankly cholecystitis and cholelithiasis, but

even in this case the gall bladder was intimately adhered to the duodenum, producing the artefact of an ulcer. In only one of the five cases of diverticula, Cases IV, X, XI, XII, XIII, were pain and vomiting prominent symptoms, and in Case XIII the diverticulum near the duodenojejunal angle so lay and adhered as to obstruct the duodenum; symptoms in Case IV were likely due to the gall bladder since it failed to visualize after the dye and two X-ray studies. Cases VII and XIV were temporarily relieved of pain and voluminous vomiting by posture; Case VII was permanently relieved at the second operation by duodenojejunostomy; Case VII developed the so-called vicious circle, following gastroenterostomy, and was later relieved at second operation by duodenojejunostomy. Case XIV developed the so-called acute dilatation of the stomach following the operation on the lower abdomen. Duodenal obstruction, vicious circle and acute dilatation of the stomach are frequently most likely one and the same thing. In Cases XVI and XVII the drag and pull and hence compression of the duodenum by the mesenteric pedicle of the median colic artery were relieved by nephrocolopexy (Longyear) and resection of megalocecum and colon respectively.

By reconstruction of clinical findings and X-ray studies in these cases of duodenal obstruction, the following symptoms are to be noted as most prominent and characteristic:

1. Vomiting of bile-stained fluid, often in enormous quantities.
2. Pain located over the whole epigastrium or right hypochondrium, sensation of weight and discomfort or the negro's "misery" in the epigastrium, between attacks and violent pain during attacks.
3. Emaciation and pallor; the gastroenteroptotic type of patient.
4. Relief by posture or abdominal supports except when the obstruction has become fixed, as in Case VII, so-called vicious circle, and in Case XIV, so-called acute dilatation of the stomach, or by taking away the weight on the mesenteric pedicle of the median colic and superior mesenteric arteries by nephrocolopexy, or resection of the colon, as in Cases XVI and XVII.
5. The duodenogastric type, severe and with acute duodenal obstruction, in which the organic breakdown pushed to a maximum and death may ensue, Cases V-VII.

The colonic type with right-sided constipation and cecocolonic stercoral stasis dominates the scene with duodenal compression as an accessory, Cases XIV, XVI, and XVII.

6. Complications, particularly of duodenal ulcer, recurrent duodenal ulcer and duodenal ulcer below the cap, Cases I and II.
7. X-ray findings of dilated duodenum, gastroenteroptosis, coloptosis studied during an attack of pain and vomiting, as Case XV; marked dilatation of the duodenum stopping suddenly at the midline; antiperistalsis and churning movements in the distended duodenum, reflux into the stomach, antiperistalsis in stomach, contraction and vomiting or antiperistalsis passing up duodenum and stomach at the same time with projectile vomiting.

There is a sharp line of demarkation between the right part of the third portion of the duodenum filled with the opaque meal and the left part, which is empty, Case XV (Fig. 15).

TREATMENT

The procedures employed in 13 of the 17 cases cited here were:

1. Posture in so-called acute dilatation of the stomach following operation on the lower abdomen, Case XIV, and in so-called vicious circle following gastroenterostomy in Case VII, with temporary relief in both cases.
2. Simple liberation of terminal duodenum, Case VIII.
3. Gastroenterostomy, Case VII, and anastomosis of duodenojejunal angle, equal to gastroenterostomy plus duodenojejunostomy, Case IX, with failure in both cases. Duodenojejunostomy alone would likely have been the proper original procedure, likewise gastroenterostomy as final operation in Cases I and II when duodenojejunostomy would have been better surgical judgment, although both cases are relieved of symptoms.
4. Nephrocolopexy, Case XVI, relieved for ten years.
5. Cecocolectomy, Case XVII, relieved for eighteen months.
6. Resection of diverticulum of jejunum and liberation of adhesions, Case XIII.
7. Duodenojejunostomy, Cases V, VI, VII and XV, with relief of symptoms immediately and permanently and with results equal to the relief of any case of acute high intestinal obstruction.

X-ray studies following duodenojejunostomy show the opening functioning perfectly, that the duodenum emptying is regular, and that antiperistalis has disappeared, Case VII (Figs. 8 and 9).

The operation of duodenojejunostomy is the operation of choice in the duodenogastric type of duodenal obstruction, in certain cases of duodenal ulcer with gastroenteroptosis and dilated duodenum, and in all of acute duodenal obstruction, regardless of cause of obstruction, where and when, on account of time, remote causes of abstruction cannot be determined.

SECTION ON PEDIATRICS

Dr. Chas. R. Bugg, *Chairman,* Raleigh

Section on Pediatrics called to order by the Chairman, Dr. Charles R. Bugg, Raleigh, at Duke University, Lecture Room No. 2031, Tuesday, April 21, at 2 p. m.

The Chairman's address was read by the Chairman, Dr. Charles R. Bugg.

CHAIRMAN'S ADDRESS

ACUTE LARYNGEAL OBSTRUCTION IN CHILDREN

Charles R. Bugg, M.D., Raleigh

In the past four years there have come under our observation 104 cases of severe acute laryngeal obstruction in 89 of which intubation has been necessary. Of these cases 93 were laryngeal diphtheria and in 11 cases the obstruction was due to other causes. These cases are fairly typical of conditions that arise in pediatric practice in this section and will be reported briefly in a more or less statistical way with remarks about specially interesting or unusual features.

PRELIMINARY STATEMENT—CASES OF LARYNGEAL DIPHTHERIA

These cases consisted largely of patients referred from out of the city. Of the 93 cases of laryngeal diphtheria, 77 were in hospitals during treatment and 16 were treated in the home or at the office. Of the 78 intubated cases of laryngeal diphtheria, 68 were treated in the hospital and 10 in home or office. There were three cases moribund when first seen. There were four colored children intubated in the office and allowed to go home. All of these recovered, and two coughed up their tubes, without any subsequent return of dyspnea. The history of two to three days of laryngeal dyspnea without a physician being called was quite frequent throughout the series. Most of the intubations were semi-emergency procedures. The hospital conditions were such that all the work had to be done by Dr. Root and the writer, there being no internes capable of intubating or of carrying out any necessary measures. For this reason it has been impractical to adopt the well-known and wise plan of repeated aspiration of membrane through a laryngoscope, as practiced at the Willard Parker Hospital. For a practicing physician to undertake this it would be necessary to be up night and day with consequent neglect of his other work, since repeated aspiration at six-hour intervals is usually necessary.

The plan adopted was as follows—after intubation the string was left attached until the immediate paroxysm of coughing was over. It was then removed in the children over two years of age. In those under two it was left attached and held to the face with adhesive, and the arms restrained with cuffs. Tubes were left in place for ap-

proximately 72 hours, the extubation always being done in the morning because of the well-recognized tendency of all forms of laryngitis to improve in the morning, and because a closer observation could be kept on the child at that time. The tubes were removed earlier than usually advised for the very practical reason that each day in the hospital was a matter of considerable expense to the parent. If breathing easily eight hours after extubation, the children were discharged. Tubes were never removed until the temperature had returned to normal and all signs of faucial or pharyngeal membrane had disappeared. When it became necessary to replace tubes these were left in either 48 or 72 hours, depending on how quickly the obstruction appeared after the removal of the tube. Tracheotomy was considered or done in those cases who were unable to go without tubes at the end of three weeks, or who repeatedly coughed up the tube and immediately became strikingly dyspneic, requiring emergency intubation. The strings were left attached in the younger children where possible because we felt that the excitement attendant upon removal of the tube with the extubator was responsible in many cases for laryngeal spasm, following the extubation, which made immediate replacement necessary where otherwise it might not have been. All the cases were attended by special nurses, one nurse caring for all patients who happened to be in the hospital at the same time. The largest number of patients present at the same time was five (November, 1928). The statistical report of the 78 intubated cases of laryngeal diphtheria follows:

Intubated cases, 78 to date.

Year in which seen—1927, 4; 1928, 30; 1929, 30; 1930, 13; 1931, 1.

Average age—3.5 years; youngest, 11 months; oldest, 10 years.

Month of year—January, 1; February, 1; March, 2; April, 0; May, 0; June, 0; July, 1; August, 7; September, 8; October, 25; November, 24; December, 9.

Cases in cities—12.

Cases in rural section—66.

Average duration of symptoms before intubation—3.4 days.

Longest duration—1 case 12 days; 1 case 10 days.

Shortest—7 hours (2 other cases intubated 24 hours).

Presence visible membrane—63; absence, 15.

Days in hospital (average) 4.4. Longest, 30; shortest, 3 cases 24 hours, (tubes coughed up).

Cases requiring replacing of tube—19; once (7), twice (6), 3 times (2), 4 times (2), 11 times (1).

There were 13 cases who required intubation 12 or more hours after antitoxin administration. Two of these were intubated 48 hours after given adequate doses, (subcutaneously) by family physician.

Two cases developed symptoms of laryngeal diphtheria after antitoxin had been given for pharyngeal diphtheria.

Tracheotomy—2 cases (one death).

Deaths—12. Mortality 15.3 per cent. Excluding 3 moribund cases, mortality 12.6 per cent. Mortality due to accidents connected with the obstruction, 2 cases. Mortality 2.5 per cent.

Cause of death—Moribund 3; Toxemia 2; Myocarditis 2; Pneumonia 2; Tracheo-bron. diphtheria 1; Coughed up tube and died 1; Tube obstructed with membrane 1.

UNUSUAL AND INTERESTING OCCURRENCES

1. Baby Jones (15 mos.) was unable to breathe without his tube after wearing it three weeks; coughed up the tube and almost died. Tracheotomy was done the same day. He was still unable to breathe at all through larynx at the end of another four weeks and was sent to Dr. Chevalier Jackson. Under Dr. Jackson's treatment for six months he finally recovered.

2. Baby Pearce developed laryngitis during the course of measles. This gradually increased and a positive culture was obtained. This child required intubation.

3. Helen Willis was given antitoxin late in the disease, required intubation, and developed in the second week, signs of myocarditis: bradycardia, pallor, arrhythmia, nausea, restlessness, poor quality heart sounds. She recovered after one month of severe illness.

4. Baby Frazier (15 months old). Had severe laryngeal diphtheria. Tube was removed at end of four days, and had to be immediately replaced. It was removed at two to five-day intervals eleven times over a period of thirty days. On the 24th day a tracheotomy was planned but the temperature was elevated to 104 and the operation was postponed. He had a mild broncho-pneumonia lasting five days. It was decided after this to try extubation once more and although moderate dyspnea continued for over 24 hours it finally disappeared.

5. Leon Spencer (10 years). Intubation was necessary seven hours after onset. Relief of dyspnea was complete. On the following day his temperature rose sharply to 105, he developed cyanosis and rapid breathing. The type of breathing suggested tracheal obstruction, but due to the rapidity of breathing, the high temperature and cyanosis we felt that he was developing pneumonia. The interesting point about the case is whether he had obstruction in the tube, tracheal diphtheria or broncho-pneumonia. It might have been wise to remove the tube and replace with a larger one. The decision was that his condition was so desperate that the effort would prove fatal. He died the same day. In the light of subsequent experience I would now remove this tube and replace with a larger.

6. Baby Hawley (3½ years) was one of the most unusual of the cases. Twelve days before seen he went to sleep on a pile of cotton. The same night he became "croupy" and apparently asthmatic. These symptoms continued unchanged for twelve days. When seen by us he had laryngeal obstruction of a moderate grade and definite asthmatic breathing. Foreign body in a bronchus was suspected. X-ray of the chest was negative. Dr. J. B. Wright did a bronchoscopic examination and found no foreign body but a small tag of tissue on the wall of the larynx. This gave a positive culture for diphtheria and all the symptoms cleared up in four days after 10,000 units of antitoxin. Intubation was done to relieve laryngeal obstruc-

tion following the bronchoscopic examination. There was another patient who had had symptoms of laryngeal obstruction for ten days before intubation became necessary.

7. Baby Campbell had tracheo-bronchial diphtheria. He had been given 36,000 units of antitoxin by the family physician in the 36 hours before intubation and the symptoms continued to progress.

8. Baby Foster had a moderate grade of laryngeal diphtheria with a positive culture when seen by us. He had been intubated one year before for laryngeal diphtheria.

9. Baby Harris (3 years) presented two interesting features. First, he was given 10,000 units of antitoxin for pharyngeal diphtheria with no laryngeal symptoms. Twelve hours later he developed symptoms of laryngeal obstruction and progressed rapidly to severe dyspnea requiring intubation the next day. The second feature occurred at the time of intubation. The tube went easily into the larynx and after a few minutes the string was removed. In two or three minutes he coughed the tube full of membrane, stopped breathing, clenched his teeth and became strikingly cyanotic. Fortunately, a violent expiratory effort expelled the tube and it did not become necessary to replace it. There were two patients in whom the tube displaced the membrane which was coughed up and gave permanent relief and two others in whom relief was temporary, lasting several hours before intubation again was necessary.

GENERAL IMPRESSIONS—NOT PROVEN BY CASE RECORDS

1. A fairly large number of the cases that required intubation had not lost their voice and in a few it was little changed.

2. Throat cultures were done in very few of the cases—the intubation being done on third or fourth day of croup and being emergency.

3. No case we had the opportunity to observe showed any striking unmistakable response to antitoxin under 18 hours. (Intramuscular.)

4. The cases we saw who were "in extremis" appeared in more danger of dying from circulatory failure than asphyxia. This conforms to the accepted idea.

5. Marked restlessness and signs of exhaustion are better indications for intubation than signs of obstructive breathing.

6. The children under two years were more likely to require replacing of the tube after its removal than the older children.

7. Only one case developed dyspnea more than eight hours after removal of tube who had breathed easily up to that time.

8. Only one of these cases is known to have had toxin antitoxin and there was no case who had had a negative Schick.

Laryngeal obstruction due to other causes where intubation was done

DIAGNOSIS

Following bronchoscopic examinations for removal of foreign bodies in air passages, 6.

Abscess of larynx formed around a fishbone, 1

Closure of larynx by granulation tissue following emergency "dirty" tracheotomy, 1.
Influenzal laryngitis, 2.
Scarlet fever, 1.
Laryngeal polypi, 1.

POST-BRONCHOSCOPIC EDEMA

The cases who had bronchoscopic examinations for removal of foreign bodies from the air passages developed signs of laryngeal obstruction two to four hours after the procedure. These children were under four years and practically all had aspirated peanut particles or kernels of some type. All of them had showed some symptoms of laryngitis before the bronchoscopic examination. Laryngeal edema in this type of case is less frequent when the foreign body is metallic in character. The bronchoscopic examinations were all done by Dr. J. B. Wright, an expert bronchoscopist. The indications for intubation were the same as those used in laryngeal diphtheria; degree of obstruction, signs of exhaustion, circulatory failure and marked restlessness. There was no case in which intubation failed to produce marked improvement in the child's comfort, and in four of the six the dyspnea was strikingly relieved. Of course the symptoms of bronchial spasm and inflammation were little affected. We feel that intubation for this condition is a logical and wise procedure. The tubes need to remain in only about 48 hours. Of these six cases two died. One was 18 months old and was breathing well with a normal temperature 48 hours after the peanut was removed and intubation done, when his temperature rose suddenly to 105 and death followed in about two hours. This was probably a suddenly developing pneumonia. The second fatal case in this group is the most interesting and unusual of all the cases seen.

CASE REPORT

Baby Stella Bradshaw, 19 mo. old, strangled while eating peanuts and aspirated a particle. She had a violent spasm of coughing and continued to cough frequently and had high fever for the following ten days. Two weeks from the accident she was brought to Dr. Wright and ½ peanut kernel was removed from the right main stem bronchus. Following the removal of the kernel she developed laryngeal obstruction and was intubated with complete relief. She breathed easily for two days and then signs of obstruction returned. The tube was removed and replaced with the next larger size. She breathed easily then for about 24 hours, when difficulty returned and this time it was obvious that the dyspnea was of the type due to tracheal obstruction. The child's condition at this time was becoming very serious and it was decided to do a tracheotomy. When the trachea was opened it was immediately obvious that it was filled with a typical diphtheritic membrane. A positive culture for diphtheria was obtained from this. The child had developed tracheal and laryngeal diphtheria superimposed on the inflammatory process due to the foreign body and the

bronchoscopic procedure. The child died the day on which the tracheotomy was done. Since that time we have given diphtheria antitoxin to all patients in whom laryngeal or tracheal obstruction has persisted more than one or two days after the bronchoscopic procedure, and to all patients in whom foreign body in the air passages has been strongly suspected and in whom the X-ray and bronchoscopic examination have failed to reveal it.

MISCELLANEOUS CASES

Only a brief general statement about the other six cases will be given. The intubations were done in the two cases of influenzal laryngitis as a late and desperate effort in practically hopeless cases. Both children died—one of them had a serious congenital abnormality of the heart and had always shown striking cyanosis on exertion. The laryngeal obstruction was part of a severe influenza with marked toxemia. Tracheotomy, which is usually recommended in preference to intubation in this form of acute laryngeal obstruction, would certainly have produced an immediate fatality. A quick intubation was done with very little extra load on the circulation, and the child died of toxemia and cardiac failure about 18 hours later. The second of the influenza cases was a typical fulminating influenzal pneumonia with some laryngeal obstruction. Intubation was a total failure in this case and the tube was removed by the string after being left in place only about ten minutes. The situation in the case of scarlet fever was similar. The child was overwhelmed with the toxemia of a severe infection when laryngeal obstruction developed. The tube relieved the dyspnea but death followed the same day. Diptheria antitoxin had been given two days before in spite of repeated negative cultures, so the laryngitis was a rare complication of scarlet fever and not diphtheritic in character.

The other cases really come under the head of chronic laryngeal obstruction, though the intubations were usually done during an acute exacerbation due to various causes. The use of indirect intubation in these patients was an adjunct to other forms of treatment, and without it these children would have died, for in a real emergency indirect intubation is a much quicker procedure than treacheotomy or direct intubation.

EXPERIENCES WITH BLOOD TRANSFUSIONS IN INFANTS AND CHILDREN

Arthur H. London, M.D., Durham

The three main points to consider in connection with transfusions are:

1. The selection of the donor.
2. The method of administration.
3. The indications for transfusion.

THE SELECTION OF THE DONOR

These may be selected from members of the family, friends, or professional donors. In Pediatric practice the father or mother is usually used and it is rare to have to call on the services of a professional. The patient and donor should be typed and cross-agglutinated. The slide should be examined for both agglutination and evidences of hemolysis. The Wassermann and Kahn tests should next be made and the donor questioned as to venereal diseases or intravenous treatment, for syphilis can unquestionably be transmitted by blood transfusion. Inquiry should also be made as to malarial infection and as to hypersensitivity, for these may be transmitted by transfusion. The donor should not eat for at least three hours before the transfusion because the use of donors who have recently eaten will, in some cases, cause a reaction. Except in cases of emergency only robust, healthy donors should be used. The donor who is anemic is not to be considered satisfactory.

In case the patient is transfused more than once cross-agglutination tests should be performed before each transfusion. Robertson and Rous (2) have shown experimentally, that following repeated transfusions from the same donor, antibodies may develop and cause Hemolytic reaction.

METHOD OF ADMINISTRATION

There are two methods by which blood may be given:

1. The Citrate Method.
2. The "Direct" Method.

The chief advantage of the Citrate method is the ease of administration since no more skill is required than for the administration of any fluid intravenously. This will probably always be the most used method because of its easy administration and because it requires no elaborate or expensive apparatus. The amount of citrate to be added to the blood should be such an amount so that in the end there will be in the blood 0.25% to 0.30% sodium citrate.

THE "DIRECT" METHOD

The term "direct" transfusion as it will be used here is really a misnomer since this originally meant anastomosing the artery of the donor with the vein of the patient so that the blood came in contact with no foreign object during its transfer; however, general usage has made the term "direct transfusion," as applied to those methods by which blood is transferred without the use of an anti-coagulant, a proper one.

There are many types of instruments on the market, each of which are claimed to be the best and simplest of operation. The one which I have used was designed by Soresi and is called "The Little Factorum." I have used this instrument for the past three years and have found it simple of operation and practically "foolproof." In the past two years I have given more than one hundred and fifty transfusions by the "direct" method and more than this number by the citrate method. From the results of experience from these two

methods it is my opinion that the "direct" method is the more satisfactory one. It is certainly more satisfactory in certain of the blood dyscrasias and I feel it is also more beneficial in cases of infection. The number of reactions are decidedly less when the "direct" method is used.

The chief objections to this method are that it requires some degree of special training and that it brings the donor in close contact with the patient. The latter objection is because of the fear of transmitting the disease to the donor. I have transfused cases of Erysipelas, Impetigo, Typhoid, Streptococcic Septicemia, etc., repeatedly by this method and have never had any infection develop in the donor.

ROUTES OF ADMINISTRATION

Two routes are available:

1. Intravenous.
2. Intraperitoneal.

Intravenous route: This is the route of choice because the blood is placed directly into the circulation without any delay or any possibility of change.

The veins most commonly used are the median basilic at the elbow, the long saphenous just anterior to the internal malleolus and the external jugulars. The longitudinal sinus has been advocated but because of unpleasant experiences has been largely abandoned. This is a dangerous route and should not be used, except in very experienced hands. In infants the superficial temporal and post auricular veins are usually seen and are comparatively large. I have found these the best to use in the small infants. In the case of extremely ill infants who do not present easily approachable veins it is much better to cut down and expose the vein (using novocain ½% as a local anaesthetic) than to subject the patient to repeated venipunctures.

Intraperitoneal route: In 1923 Sipperstein and Sansby (3) reported their experiments and clinical results with the injection of citrated blood into the peritoneum. Cole and Montgomery (4) have recently published results of two hundred and thirty-seven intraperitoneal transfusions in private practice. They conclude that this method has all the advantages of intravenous transfusions, except replacement of blood volume; that the reactions are minimized and that the procedure is so simple that every physician should be able to use it. The blood may be collected from the donor in the same manner as for intravenous transfusion. It is administered by inserting the needle in the midline below the umbilicus and above the bladder. This method is applicable for children up to four years of age. It would seem that the chief advantage of this method is its ease of administration. There are disadvantages for absorption from the peritoneal cavity is an uncertain process as has been pointed out by McKhann (5) and, as has been pointed out by Floyd (6) certain sick infants have an impaired capacity to absorb blood from the peritoneal cavity.

INDICATIONS

The indications for transfusions are:

1. Hemorrhage.
2. Shock.
3. Diseases of the blood.
4. Nutritional disturbances.
5. Infections and Toxemias.

1. Hemorrhage—Here transfusion is the ideal treatment, for not only is the lost blood replaced, but in many instances the actual bleeding is checked.

2. Shock—In post-operative and traumatic shock transfusion is often useful, especially so if it is associated with hemorrhage. It may also be used pre-operatively to diminish the shock of the operation.

3. Diseases of the Blood—Transfusion is a specific in hemorrhagic diseases of the newborn. It will check the bleeding of an Hemophiliac but will not effect a cure. In pernicious anemia it will tide the patient over a crisis and will frequently initiate a remission. In von Jakch's anemia and Banti's disease it is of temporary value. In Purpura Hemorrgahica repeated transfusions are often needed to stop the bleeding, though in some cases it is checked by the first one. In lukemias the benefit is only transitory. In secondary anemias it is of great benefit, one transfusion will raise the red blood cell count and hemoglobin to a level which could be obtained only after weeks of treatment by the slower methods. Transfusions are an aid in preventing secondary infections, to which these aneimc children are so susceptable, while the slower methods are being used to combat the cause of the anemia and to permanently combat the condition. Transfusions also act as stimulants to the hemotopoetic system.

4. Nutritional Disturbances—In the cases of acute intestinal intoxication transfusions are used in addition to the administration of physiologic saline subcutaneously and glucose 10% intravenously. It combats any accompanying anemia and plays an important part in the retention of body fluids. In Arthrepsia it is a valuable adjunct to the recognized treatment. Although it is not a specific it will increase the child's tolerance for food, and combat the associated anemia.

Prematures, who regularly, according to Hess (7) develop a secondary anemia during the first three months of life are benefitted by transfusions.

In Pyloric stenosis it is useful to improve the operative risk and to lessen the post-operative mortality.

5. Infections and Toxemias—In this group is found an increasing field of usefulness for transfusions. The list includes: Arthritis, Acute Hemorrhagic nephritis, Burns, Carbon Monoxide poisoning, Dysentery, Empyema, Endocarditis, Erysipelas, Lateral Sinus Phlebitis, Mastoiditis, Nephrosis, Pyelitis, Pneumonias (Broncho and Lobar), Osteomyelitis, Typhoid, Tuberculosis, etc. A few of these will be considered.

Pneumonia: The cases of Pneumonia showing the most favorable reaction to transfusions are the toxic ones and those with a marked secondary anemia. In practically all pneumonias there is a mild to

severe secondary anemia. Leake and Brown (8) have shown that in experimental pneumonias in dogs there is a decrease in the number of red blood cells without a compensatory regeneration. Binger (9) has called attention to the incomplete oxygenation of blood and its relief by oxygen. Blood transfusions relieve the anemia and increases the number of available oxygen carriers; also, and this may be one of the most important factors, it is possible that the immune bodies thus transferred exert a favorable influence on the infection. Transfusions in prolonged cases of pulmonary involvement have been advocated for some time, but Bass (10) in 1925 was the first to emphasize transfusions in the acute types of pneumonia. The chief objection raised to transfusions in acute pneumonias is that it embarrasses the heart. I have transfused many pneumonias using small amounts of blood and repeating if necessary and have never seen any evidence of cardiac embarrassment either during or after the transfusion.

Two slides are shown (Figs. 6 & 7) to illustrate the dramatic effect sometimes encountered after transfusions in pneumonias. The first case had run a septic temperature with signs of broncho pneumonia for three weeks prior to the transfusion. The second case had a lobar pneumonia, was quite toxic, and the transfusion was given on the fourth day of the disease.

Infections with Organisms for which there is a Specific Serum.—In these infections, which include Erysipelas, Streptococcic Septicemias, etc., it is advantageous to give transfusions in conjunction with the serum. These cases seem to improve more rapidly, and those cases which apparently fail to react to the serum will sometimes respond if a transfusion is given following the serum therapy. The reason for this is not clearly explained. It is possible that the transfusion acts by adding complement.

Acute Hemorrhagic Nephritis: Following a transfusion on a case of acute hemorrhagic nephritis who was showing gross blood in his urine and who was transfused because of a severe secondary anemia I was surprised to find that the gross blood disappeared. This experience has been repeated on two other occasions. I have not had occasion to observe the result other than the times mentioned. There are two possible explanations for this phenomenon:

1. The toxins which are damaging the glomeruli, and thus causing bleeding, are diluted.
2. The haemostatic effect of whole blood.

Tuberculosis: Transfusions combat the anemia and anorexia present in these cases. It is probable that some day we will find that transfusions from the healed case will aid in arresting the acute ones.

General Infections: In all infections of a severe nature there is some accompanying anemia. The beneficial results of transfusions in these cases is probably due to the combating of this anemia plus the addition of immune bodies.

IMMUNO-TRANSFUSIONS

In cases of bacteremia Unger (11) recommends using an autogenous immunised donor. By this is meant, a vaccine is prepared

from the organism infecting the patient and this is given to a donor until he has developed an immunity to it. Then the patient is transfused from this immunized donor. He recommends daily injections of huge doses for seven days, using one billion and rapidly increasing until one hundred and fifty to two hundred billion is reached.

The use of the autogenous immunized donor, it seems to me, has not been practised as much as it should be. Good results in one case a year fully justifies its use. Two cases are cited below which will give you an idea of the beneficial results sometimes obtained.

Case 1. C. B. (Fig. 8) age 13 years.—Diagnosis: Lateral Sinus Thrombosis. Operated on but the blood culture remained positive, given repeated transfusions with temporary good general effect but no effect upon the temperature curve and no lasting effect on the general condition. A vaccine was made from a culture from the lateral sinus and a donor immunized. The donor was given a skin test with the vaccine (mi) to which he reacted strongly. The vaccine was then given, a dose (mi) subcutaneously and this increased each day as rapidly as possible, the increase in dosage being gauged by the local and general reaction of the donor. This was continued for two weeks, the donor was then given a rest for two days and then the transfusion performed. Following the transfusion there occurred a striking change in the clinical course of the disease and the temperature curve showed a decided change for the better, as can be judged by the accompanying chart. Another immuno-transfusion was given two weeks later, following which the patient's temperature dropped to normal and remained there.

Case 2. B. H., age 5 years (Fig. 9.)—Diagnosis: Suppurative Ethmoiditis, Orbital Cellulitis, Osteomyelitis, Septicemia. Causal organism-Staphylococcus Aureus. Despite operative intervention with the securing of good drainage and two transfusions, the patient's temperature continued to be of the septic eype. Following an immuno-transfusion the temperature dropped to normal and the patient has continued on the road to convalescence. The donor in this case was given 0.1 c.c. of the autogenous vaccine and this was repeated every other day, the dose being doubled each time until he had received 3.0 c.c., then following a rest period of three days the transfusion was given.

The usual argument used against this procedure is that it takes too long, that the patient is dead long before the donor has been immunized. This is true in some cases, but who will dare prophesy which case will die and which will live long enough to benefit of this procedure? In my experience the situation is that the institution of this procedure is put off too long. That the donor is not selected and inoculated until it is found that all other methods have failed and the patient is dying. It would be a good general plan to prepare a vaccine as soon as a culture is obtained in all cases of septicemia, and to immunize a donor. If the immuno-transfusion is not needed no harm has been done. If it is needed, a great deal of good may be done.

EXSANGUINATION TRANSFUSIONS

By this is meant the withdrawal of blood by venesection and replacing it with blood from a donor. The exsanguination is usually begun before the transfusion and continued until the transfusion has been partially given. This method of treatment is indicated in severe toxemias, carbon monoxide poisoning and uremia. In the severe toxemias it serves to decrease the accompanying acidosis, removes some of the toxins and dilutes the remaining toxins. I have seen a child in uremic coma converted from a comatose child into a smiling, singing lad by this method of treatment.

SUMMARY

The procedure of transfusion has been reviewed. The procedure for selecting the donor and giving the blood has been reviewed. The indications for transfusion have been discussed and especial mention made of its benefits in certain diseases. Special types of transfusions have also been discussed. A suggestion is made that transfusion may be a method of checking the bleeding in acute hemorrhagic nephritis.

CONCLUSIONS

1. Typing and cross-agglutination should be done before every transfusion.
2. The donor should have a negative Wassermann and Kahn.
3. The donor should not have eaten for at least three hours prior to the transfusion.
4. The citrate method is a useful procedure and is easy to do.
5. The direct method will give the best results.
6. Intra-peritoneal transfusions are of value in certain cases but are not as beneficial as intravenous transfusions.
7. Transfusions are of value in many diseases which affect infants and children, some of which have been mentioned.
8. Immuno-transfusions are beneficial in cases of septicemia and should be more freely used.
9. Exsanguination transfusions are of benefit in toxemias, Uremia and Carbon Monoxide poisoning.

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DISCUSSION

THE CHAIRMAN: The paper is now open for discussion. The chair will recognize Dr. Marion Y. Keith, of Greensboro.

DR. KEITH: It is indeed a pleasure to have the opportunity to attempt to discuss this paper so fully and well presented. I feel that every pediatrician should bring transfusions into frequent use. I do not see how one can practice good pediatrics unless he makes frequent use of transfusions. I was trained with two men who believed in transfusions because of the results that they had and I am a firm believer myself.

I will briefly mention some of the most interesting points brought out in this paper. The first is the necessity of repeated matching or cross-matching of blood before every transfusion. If you do not do this, serious trouble will follow. You may get by with it for a while, but sooner or later you will be caught. I have seen cases in which the first, and second transfusions were all right with the same donor and recipient, and on the third time no agglutination appeared, but there was complete hemolysis in cross-matching. The situation that arose was a serious one. I had that experience about nine years ago and I have never been guilty of that since.

The question of method lies entirely with the man, the one he desires to use. I have used both and I am doing the citrate method now. I think the results are good with either and are perfectly justifiable. I feel in any method the intrasinus puncture should be done only by skilful hands.

I do not feel that the results to be had from intra-peritoneal injections or transfusions are as good as those entering the blood stream directly. If patient is anaemic, critically sick, the ability of peritoneum to take up fluid is impaired and, unless other routes have failed, I do not feel you are justified in doing an intra-peritoneal injection with blood. Once in a while I feel you probably will have to resort to the peritoneal cavity as a last means, if you do not prefer to cut down. Much distention and discomfort can arise by this method. Most patients die before the fluid is taken up.

As to some of the acute fulminating infections associated with toxic conditions which we see, we are meeting the demands and indications are rising more and more every day for transfusion in treatment of same. I do not believe in transfusion for every case of pneumonia,

but I believe there are certain cases in which a transfusion is definitely indicated, as those of acute fulminating infection, and those cases which are toxic, very cyanotic, accompanied by a mild or no anemia. In giving the patient frequent small transfusion, there is no increase or tax on the circulation. You raise the resistance, increase antibodies, you increase the ability of the blood to carry oxygen to the lung, and this is a great benefactor in combating the cyanosis and toxemia.

There are some cases which I think are benefited even in the absence of infection. Sometimes we have a child who will not eat or progress. The child stands still and soon becomes a burden to the mother so far as feeding is concerned. The doctor fails to help him. In these cases I feel we are justified in giving the child a mild transfusion to get him started on the upward road.

One of the most interesting points in this paper is the use of the immunized donor. Certainly it seems very logical. The argument and principle on which convalescent serum is given in treatment of measles, scarlet fever is the same here. I feel that we should give more frequent consideration to this method.

Only a few years ago physiological saline was introduced. Then came glucose, and now we have reached the stage of transfusion. They are definitely indicated and the results of work have proven their value. They are our greatest agents in fighting diseases.

Dr. Thomas Watson, Greenville: Mr. President and Gentlemen of the Section: There is not much left for me to say. Dr. London and Dr. Keith have covered the field remarkably well. I agree with them that transfusion is "good for what ails them," as Dr. Marriott puts it. It makes little difference what the cause of the trouble is, if the patient is under par, new blood will help.

I wish to repeat what Drs. London and Kieth have said about the matching of the blood before every transfusion. It is always necessary to rematch the blood, if a second transfusion is to be given from the same donor. It is a definitely established fact that the blood of a donor which matches perfectly does not always match again after one transfusion has been given. We frequently see haemolysis and also definite clumping of the cells in these cases.

Dr. Sidbury and I had one patient whom we transfused many times. She received about twenty quarts of blood during the past eight years. Early in the course, the mother's blood matched perfectly, and she was used as a donor on three occasions. After the third transfusion, however, something happened which made the bloods incompatable. Several times during the past five years I have seen the cells of the mother clump tightly when they were mixed with the serum of the patient.

I have not had much experience with intraperitoneal transfusions. The three I did looked as though they would explode following it and had considerable discomfort, and the post-operative results were nothing like as satisfactory as in the case where it was given intravenously.

If we feel that it is absolutely necessary for the patient to have a transfusion and we can't get in by direct puncture, it is a whole lot better to cut down on the vein and give it that way than to give

it intraperitoneally. I use the Unger method practically altogether. In a very few cases where the patient was not able to go to the hospital, I have used the citrate method.

Another point I want to mention is that during the transfusion, even though the blood has matched perfectly on the slide, and there was no indication of hemolysis nor agglutination, if the patient shows any signs of reaction after the transfusion has begun, such as a sudden cough or restlessness, crying out, or cyanosis, then, regardless of the matching, grouping and everything else, the safest thing to do is stop. In a case like this I do not use the same donor any more. I match again and get another donor. I have proceeded several times after such a sign was given and although I didn't have a mortality in the patient, it scared me half to death.

In exsanguination followed by transfusion, where you use a large amount of blood, it is frequently necessary to use more than one donor. In such a case it is necessary to match the blood of the two donors against each other, as well as against that of the patient, because occasionally you get a perfect match with the patient but hemolysis between the bloods of the two donors.

I wish to bring out one more point. I think this technique was introduced by Dr. Sidbury. It helps out the surgeon, the donor, and does the patient no harm. Always give the donor a little nip of moonshine just before you start. (Applause and laughter.)

GENERAL TREATMENT OF ACUTE INFECTIONS IN INFANTS

Donald E. Robinson, M.D., Burlington

The treatment instituted at the onset of an acute infection is often an important factor influencing the length of the illness and its severity. The general condition of the patient during the primary disease will either protect against or predispose to complications. This is peculiarly true of infants. This paper reviews certain physiological and chemical phenomena characteristic of infant metabolism, briefly going into the treatment of problems thus presented. Our main purpose, however, is to emphasize the importance of vigorous and early general therapy.

The fluid balance in the infant is so delicate and easily disturbed that it presents a most important problem in acute infection. It characterizes infant metabolism. The healthy breast-fed infant takes most of its fluid with its nourishment. When infection sets in it nurses a smaller amount and frequently will vomit. The refusal of food reflects disturbed digestion and is useful. The accompanying reduction of the fluid intake is harmful. The kidneys at first are stimulated by increased metabolic wastes, toxins and blood flow. Further fluid is lost in this way. The fluid loss resulting from increased ventilation by the lungs is considerable. The stools are increased in number and fluid content. This loss amounting normally to one or two ounces may in cases of extreme diarrhea exceed the total fluid intake.

The fluid intake is thus diminished, while the output is increased. Infant tissues rapidly give up water to the needy blood-stream. This helps to maintain blood volume and circulation. The relief, however, from this source can be but transient and soon the glands and organs of excretion are functionally impaired. The infant is dehydrated and handicapped at the start.

To prevent the occurrence of dehydration the fluid intake must be maintained at a level slightly above the normal requirement in mild cases. In severe cases considerably more is required. Water by mouth should be forced. An infant with extreme malaise takes voluntarily only enough to moisten his throat, and further swallowing is an effort and is disagreeable. Small amounts at frequent intervals are less likely to induce vomiting. Satisfactory results, I believe, can be obtained in the home only by insisting on the mother keeping a chart, recording the intake and the frequency of urination. If vomiting is an obstinate symptom and threatens the success of this form of treatment, fluid may be given by saline enemata in the home without difficulty. Often by having taken part of the load from the stomach by this means enough may be given by mouth to satisfy the requirements. If both methods are not available, because of vomiting and diarrhea, hypordermoclysis, intraperitoneal or intravenous injection of fluid must be given. Carrying out these methods is a real problem in the home. It is not contraindicated, but requires greater pains to preserve technique. The use of these latter methods in the home is suggested only when removal to the hospital is contraindicated by the patient's condition.

The gastro-intestinal physiology and chemistry of the infant is another closely associated and equally exacting problem. Disturbed digestion is perhaps the most consistent and early symptom of acute infection in infants. Frequently it will persist long after the primary disease has cleared up. Diarrhea is probably the most common contributory cause of death in infants.

The normal secretion of the infant stomach at the height of digestion has an hydrogen ion concentration of approximately 3.6. When unmodified cow's milk is substituted for breast milk this approaches 5.6. These figures compare with a pH of 1.6 in the adult stomach. In acute infections, fever inhibits gastric secretion, lowering the acidity still further. The gastric acid has a real bacteriocidal function. The high incidence of diarrhea and dysentery in infants improperly fed, artificially and complicating parenteral infections is in part the result of the impairment of this function of the gastric acid.

The body mobilizes its defensive powers better in the presence of fever. Fever is therefore useful. The infant's response to infection, however, apparently swings beyond the optimum in this. Nervous symptoms often simulating meningitis result from fever and toxicity. Digestive disturbances are exaggerated. Both of these reactions to fever considerably interfere with the rest and proper therapy of the patient. General treatment should therefore strive to regulate temperature. The symptoms in the individual cases

help to determine how strenuous an effort is necessary. Enemata and sponge baths, I believe, are preferable to antipyretics if they can be properly given.

The secretions of the pancreas and intestines are alkaline. Normally a large percentage of this base is reabsorbed. When the stools become frequent and copious a higher ratio of fixed base to fixed acid is secreted and less is recovered by the body. The alkaline reserve is necessarily called upon to produce further secretion. The importance of maintaining the reserve is brought out later in the discussion of acidosis. Alkalies should be included for this reason in the general treatment. The maintenance of an alkaline urine reaction is a means of regulating the amount given.

At the onset of infection there is present in the intestines food which is but partially digested and assimilated. The bacteria normally present in the intestines and other strains now able to resist the lower acidity of the gastric secretion, are furnished a better medium for growth as a result. Putrefactive and fermentative products may be absorbed or irritation of the intestinal mucosa occur. The intestinal tract should be cleansed of this undigested food, but not irritated by repeated attempts to do this. After this has been accomplished, great care should be taken to offer only such food as can be readily digested or remaining but partially digested will produce the least favorable medium for the growth of harmful bacteria. No food is necessary at first, except sufficient carbohydrate to prevent ketosis. When food is resumed, small amounts of an acid milk with high protein, low fat and carbohydrate of the dextrin and malt type may be given and increased if tolerated well.

There is considerable difference of opinion about the type of laxative most desirable for the sick infant. One which results in two or three free movements and does not leave the bowel irritated seems to be desirable. My preference is one of the salines, followed in four or five hours by an adequate enema. The salines are hypertonic and increase the fluid content of the stool by preventing the absorption of water. The increased bulk of the stool stimulates peristalsis, the liquid consistency facilitates evacuation. It is of considerable importance to furnish adequate fluid by mouth, so that dehydration will not be aggravated through the action of the saline. Stronger cathartics, acting as intestinal irritants, I believe, are likely to produce purging with blood and mucus in the stools and leave a diarrhea complicating the picture. The prognosis and the duration of the disease may be critically influenced by the choice of the cathartic. I believe that some delay in catharsis is less to be feared than rapid evacuation which cannot be checked later on.

By treating every acute infection as a potential diarrhea we would probably appreciably reduce the frequency of this complication.

The maintenance of the normal hydrogen ion concentration of the blood is accomplished by numerous delicately balanced physicochemical equations resulting in an acid base equilibrium. In acidosis this equilibrium is disturbed with a lowering of the carbon-dioxide,

combining power of the blood as a result. This may be brought about by a loss of fixed base, an increase of non-volatile acids or by both combined.

Loss of base results from diarrhea in which the ratio of fixed base to fixed acid in the stools is increased and reabsorption of salts is decreased. The importance of prophylaxis against diarrhea is thus again emphasized. Further, though smaller, amounts of base are lost when the renal function is impaired. If the kidneys fail to produce sufficient ammonia to combine with the acid radicals to be excreted, the alkaline reserve is called upon for this need. Forcing fluid maintains the blood volume, and with this an adequate circulation and nutrition for the kidneys. Diuresis dilutes bacterial toxins and conserves the renal tissues.

Fixed acids may be increased in several ways. Impaired renal function may result in the accumulation of the phosphate, sulphate, chloride and salicylate radicals. Large and prolonged doses of any of these may aggravate this condition. Increase production and incomplete combustion of lactic acid may follow convulsions and impaired circulation and oxygenation, thus increasing the lactate ion in the blood. Finally, insufficient glucose in the blood gives rise to ketosis. In the absence of glucose the carbon chain of the fatty acids is split abnormally with the production of diacetic and exybutyric acid. The existence of ketosis is evidenced by the presence of acetone or diacetic acid in the urine. To prevent or relieve ketosis sufficient glucose must reach the blood to allow the normal combustion of fatty acid. Unless severe and obstinate vomiting exist, carbohydrates may be supplied by mouth.

If food be omitted temporarily except for this the chances of a severe gastro-intestinal disturbance are lessened and the return to a normal diet is hastened. Should ketosis be severe and vomiting render the oral route uncertain and slow, intravenous administration of glucose will furnish prompt relief.

While on the subject of carbohydrate metabolism during acute infection, I shall simply mention the occasional occurrence of convulsions accompanied by hypoglycemia. If we were to get blood sugar analysis more often upon infants with convulsions at the onset of acute infection, this condition might prove to be not so uncommon. Whether we are dealing with toxic or truly hypo-glycemic convulsions, the administration of glucose intravenously provides prompt relief. If fluids and available carbohydrates were pushed at the start, it is possible that this condition might be avoided.

A solution has been designed to meet the emergency needs of the infant with diarrhea. 15 cc. of U. S. P. lactic acid, 20 cc. of 10% sodium hydroxide, and 50 cc. of Karo with water to make one litre. This is given by mouth. A somewhat modified solution to meet the same needs has been devised for intravenous use. I believe this is a simple, efficient and rational means of prescribing for the essential needs of an infant with an acute infection.

Summary: The problems peculiar to infants with acute infection have been outlined, the therapeutic suggestion arising from these

considerations have been pointed out. Co-operation in carrying out local treatment and in administering drugs is had as a rule very easily. It is often very difficult, however, to impress mothers with the value of general therapy. The physician is required to emphasize this, give instructions plainly and simply, and then insist on his treatment being carried out. We feel that this will do much to reduce the frequency with which diarrhoea, dehydration and acidosis complicate acute infection.

DISCUSSION

THE CHAIRMAN: Dr. Robinson's paper is now open for discussion.

DR. S. S. SAUNDERS, High Point: Mr. President, Ladies and Gentlemen: I think Dr. Robinson has given us an excellent paper this afternoon, which requires very little discussion. I simply want to emphasize the maintenance of the fluid balance in many of our children who are dehydrated or becoming dehydrated. I think that is very important.

Dr. Robinson has told you that most of these cases do better when hospitalized. That is true, but we must also consider the type of patient who cannot for one reason or another be hospitalized, and give these infants fluids in the home if necessary. Sometimes I find rather serviceable for this purpose the use of a large 100 cc. syringe in such cases, not only for giving intraperitoneal and subcutaneous injections or treatment, but occasionally for citrate transfusion. This does away with the necessity of sterilizing a lot of cumbersome apparatus in the home.

Another factor, which I think has been well stressed this afternoon, is giving of transfusions to the weak, anemic, malnourished infants who are recovering from some acute infection. I think we sometimes tend to overlook this fact, especially if it is a type of patient in whose case we feel there is no monetary reward, or a patient that we cannot hospitalize.

I think a great many of these children we do not transfuse should be transfused.

Another thing that should be emphasized is too much interference in the way of medication. That is particularly true in many of our pneumonias. We are called in consultation to see a child with pneumonia, perhaps receiving medication every hour out of the twenty-four, and the child doesn't have a chance to rest. I think in a great many cases if we just use common sense and give the child fluids and medication and nourishment at certain stated intervals, we will do very much better, and not exhaust our patient.

There is also often too much interference in the case of high temperature. Of course, where the temperature is very high and the child is reacting by rapid heart action, extreme restlessness or loss of sleep, and disturbed digestion, it is necessary to attempt to reduce the temperature by employing antipyretic drugs, but I think in general a great many of these children will do better if treated by hydrotherapy and enemata, and alcohol sponges, rather than giving too much in the way of antipyretic drugs.

Dr. C. A. Street, Winston-Salem: I wonder if we often recognize one point, and that is hypoglycemic reaction. I believe I have seen three cases of it, and since I am fairly familiar with the symptoms, and the treatment is successful, I might mention it. I didn't get blood sugars on either one of these youngsters, but the third one, the most characteristic, a boy two and one-half years of age, did not have a very good appetite and the day before went to bed without supper. The mother called me in the morning and said Theodore wasn't acting right. Ordinarily he was very much afraid of me, and didn't want to play with me, but this time he came over to me and climbed on my knee. He was a little groggy and didn't seem to see things very well. I couldn't find anything wrong with him, and from general appearance I decided he had a low blood sugar, gave him orange juice and a little coffee with sugar in it (because he would take it), and in a few minutes he was all right. I didn't get blood sugars, but the treatment was successful and I have no doubt that this one had a low blood sugar.

Someone has written a number of articles on the subject, I have forgotten who it is, Griffith I believe. His cases were very much like mine. It usually happens out of a clear sky, early in the morning, before they have had anything to eat and in some cases convulsions occurred from low blood sugar.

OLD DRUGS IN NEW DOSES

J. LaBruce Ward, M.D., Asheville

The purpose of this paper is to invite your attention to the consideration of a few drugs which have been included in our medical armamentarium for many years, and to suggest their use in the treatment of certain conditions only, in doses not recommended in the materia medica, and although (in the case of some of them) recommended in text-books, not commonly employed in the large dosage so recommended. None of these drugs is a specific, and yet when used with a free hand they will afford that relief which is otherwise not obtained. It is not to be supposed that we are advocating larger doses of all drugs, nor even larger doses of the few drugs here considered, except for the relief of the symptoms under discussion. The dose of a drug is commonly arrived at by considering the weight and the age of the patient, but there are many other factors no less important than this—many of them unknown—which should enter into the calculation. Experience teaches us that one patient of a certain age and weight will require twice as much of a certain drug as will another patient of the same age and weight, also that the same patient may need a larger dose at one time than at another. It may be said that when there is a clear indication for a drug, the system will tolerate it in larger doses without producing toxic symptoms than when this is not the case. For example, a half grain of morphine given to the average man will produce profound somnolence, yet we once saw a man writhing in pain from kidney

colic after having received four times this dose per hypo within a half hour. The same holds true of many drugs. It is only fair to conclude, therefore, that the dose of a drug necessary to relieve symptoms must be determined, to a large extent, by the severity of those symptoms. Because of the failure to recognize this or because of temerity on the part of the physician, many useful drugs are condemned when their use in adequate doses would bring relief. By this time you will have suspected that the writer is not a homeopath.

First let us consider atropin. This drug has long been used for the relief of pylorospasm in infants, but was never considered of great service—and even now is too seldom employed—until Haas advocated its use in large doses, that is, beginning with 1-1000 of a grain and increasing until within three days 1/50 of a grain is given every four hours, unless dangerous symptoms are produced, or the vomiting ceases. When the required dose is ascertained, this must be continued for several months. We have given as much as 1/30 of a grain three times daily for five months.

Marked dilatation of the pupils and flushing of the skin is no indication for discontinuing the drug, although a very high temperature or muscular twitching may make this imperative. Instead of flushing we may have pallor, and instead of twitching, muscular relaxation. Over a period of ten years we have found it necessary to seek the aid of a surgeon but once, and have lost but one patient. The latter was an infant of three weeks, in an extremely dehydrated condition, who died within 48 hours after treatment was begun. As Haas points out, it is absolutely essential to have a solution of atropine not over three weeks old.

Next, let us turn our attention to the use of antipyrin in the treatment of chorea. Although advocated for this purpose many years ago and even used by a few physicians in large doses, it is certainly not used to the extent that it should be. For this disease we have no specific, and, in fact, no drug which can be relied upon to give even temporary relief to the distressing symptoms. While our experiences with this drug is limited, so far as its use in chorea is concerned, and while we realize that one swallow does not make a summer, yet the relief afforded in a few cases makes it seem worthy of mention. In five cases the symptoms were markedly improved within a week or ten days. In one case they were rendered less severe but continued for three weeks, while in another they were not relieved. The result in one case was particularly striking. A boy of seven years had been treated by four physicians in a northern city, one of them a noted neuropsychiatrist. For two months he had been given arsenic, bromides and chloral without benefit. The choreic movements were so violent that he could be kept on the bed only with great difficulty. He was put on 10 grains of antipyrin twice daily, and the dose increased by ten grains each day until he was taking 50 grains daily. By this time the choreic movements had decreased to such an extent that he was able to feed himself and to walk about the room. Then there occurred a

profuse morbiliform eruption over the entire body, which disturbed the patient and the physician much less than it did the family. The drug was discontinued for a few days, and then given as in the first instance, resulting, in one week, in an entire cessation of the movements, but not in a recurrence of the rash. The kidneys were not effected by such large doses. The drug should not be given if there is any indication of kidney irritation, and should be discontinued if this occurs. However, we believe that the likelihood of causing kidney irritation has been exaggerated.

Now we would speak of the salicylates in relieving the symptoms of rheumatic fever. While they have been used from time immemorial, the quantity given is usually too small to get results. The drug has probably no effect in preventing or curing cardiac complications, but when given freely it rarely fails to relieve the angina, the joint pains, the muscle pains or to reduce the temperature. We do not feel that aspirin offers any advantage over sodium salicylate, and it has the disadvantage of being incompatible with alkalies. Dr. Lees pointed out many years ago that bicarbonate of soda, given in doses sufficient to keep the urine alkaline, prevents the toxic effects of the salicylates. To a child ten years of age, he has given as much as 5 drachms of sodium salicylate in twenty-four hours, without untoward result. We have never found it necessary to use such doses. To a child of ten years, one should begin with 15 grains every three hours, and, if necessary, increase to 20 grains until the symptoms have been relieved for several days, or until toxic symptoms appear, in which case the drug should be discontinued and water and alkalies given freely. Sodium bicarbonate, given in double the dosage of the salicylate, usually suffices, but enough should be given to keep the urine alkalin. It is essential when giving large doses of the salicylates, to keep the bowels freely open. Chief among the toxic symptoms should be mentioned ringing in the ears, gastric disturbance, cardiac weakness, delirium and rapid gasping respiration. Finally, let us consider the action of chloral hydrate in the treatment of convulsions. This must not be construed as meaning that the cause of the convulsions should not be ascertained and removed when possible. We are here considering only the treatment of this pediatric emergency. With the exception of chloroform, no other drug is comparable to chloral in relieving this condition. Morphine we have found much less effective than is claimed for it, and the same is true of phenobarbital. Bromides are practically worthless. Chloral is a dangerous drug and the threshold between physiological effect and toxic symptoms is narrow, but "diseases desperate grown by desperate appliances must be relieved, or not at all." The drug is irritating to the stomach, and is best given by rectum except when the infant has diarrhea. In such cases it should be given through the nasal tube. To an infant of one year, 10 grains of chloral hydrate in one ounce of starch water should be given by rectum and repeated every hour if the convulsions recur. When the convulsions are due to encephalitis or meningitis, even larger doses may be necessary. A case may be

cited where a girl of three years, having repeated convulsions as a result of encephalitis, was given 30 grains of this drug by mouth, and 60 grains by rectum within twenty-four hours, and even then continued to have muscular twitching. When given by mouth the dose should be only 2/3 of that given by rectum.

In conclusion, let us state that large doses of drugs used indiscriminately is to be condemned. Where there is a clear indication for a certain drug it should be used in sufficient dosage to relieve symptoms unless toxic manifestations demand its discontinuance. This presupposes close supervision by the physician and a thorough knowledge of the action of the drugs employed.

DISCUSSION

THE CHAIRMAN: Dr. Ward's paper is now open for discussion. I recognize Dr. K. B. Geddie, of High Point.

DR. K. B. GEDDIE: It is always a pleasure to hear a paper so in accord with one's own ideas. While I think we owe Dr. Ward a vote of thanks for telling us that the dose of a drug which is clearly indicated is enough and is not to be figured on the basis of age, or weight, or any other tangible thing, I do think that there are a certain number of cases where antipyrin in large doses is certainly a dangerous drug to use. I recall having seen a two-year-old girl with an acute laryngitis who was given two grains of antipyrin twice within four hours, and that child died intensely cyanotic and not intensely dyspneic less than an hour after the last dose. It was a typical coal tar derivative death.

I agree with him heartily on the use of large doses of atropin in the treatment of pyloric spasm or stenosis. While I have not used it in the heroic doses such as mentioned (1/50 grain every four hours), I have used it in doses of 1/100 grain and have seen remarkable results. I have also seen cases of pyloric spasm or stenosis which did not react to it, which did react to what might be considered large doses of luminal, giving a quarter of a grain twenty minutes before a nursing period, over period of several weeks. That dose seemed to work at times when smaller doses didn't, and that is a large dose.

DR. JOHN COTTEN TAYLOE, Washington: Dr. Deaver, who talked to us this morning, was once asked in the treatment of generalized peritonitis how much medication to give, and he replied, "Give enough," and I believe in the use of any drug in order to get its effect we should give enough of it, but not give too much so that we will get the toxic symptoms.

I am in agreement with Dr. Ward in regard to his dosage. We quite often don't get the effect from the drug we ought to get because we don't use large enough dosage.

He took up four drugs, atropin being the first, and I am in agreement with him in the use of it. I have used it in the pyloric spasms in a good many cases. I have not used it in the larger doses he has, generally starting with 1/500 gr. and increase until it gets to 1/200 gr., and it is spectacular to see babies come in there who are

vomiting and when you put them on atropin, they stop vomiting and begin to gain in weight.

I also agree with him in the use of salicylates. I think often we don't get the effect in the treatment of acute rheumatic fever especially because we don't give enough of it and also I give the soda bicarbonate with it because it lessens the toxic effect of the salicylates and seems to make them less irritating to the stomach.

In regard to the use of antipyrin, I haven't had any experience with that in the treatment of chorea. I have used it in the treatment of spasmodic croup and also in whooping cough in children, but I haven't been courageous enough to give it in the dose he has.

In regard to chloral hydrate in the treatment of convulsions, I have not so used it, but I have used bromides and luminal and the opiums. I have been a little afraid to use it because since my medical school days I have remembered that they always told me it was heart depressing. However, in the literature I have seen several cases reported where patients received 200 grains and others received 500 grains and recovered from the poison of it, so I feel that 10-grain dosage is absolutely safe.

I enjoyed the paper very much and I think we should have more papers on therapeutics and drugs. (Applause.)

Dr. S. F. Ravenel, Greensboro: Far be it from me to terminate the pean of praise evoked by this excellent paper of Dr. Ward's, but in my hands atropin has not been the perfect weapon in combating pyloric stenosis that it seems to be in the hands of the gentleman from Asheville. I do not know whether it is because our atropin is very weak or our babies very strong in Greensboro, but I have found several infants who did not respond to atropin in huge doses and who fell into the hands of a surgeon, with happy results.

I do not believe that we can cure any type of tumor with any drug, if we exclude that more or less physiologic tumor which is still occasionally cured by pituitrin. So far as the dose of chloral hydrate is concerned, I believe that is a drug which is not so dangerous as is ordinarily supposed. Through the mistake of a nurse, a child was given ten grains of chloral hydrate every four hours for four doses and when I discovered the mistake, I almost went into coma myself, but the infant did not appear to be harmed.

Dr. J. LaBruce Ward, Asheville, closing the discussion: In regard to the question about magnesium sulphate, I think it is very valuable. It acts more slowly than the chloral and if the child is having hard convulsions, it would be advisable to give the chloral instead of the magnesium sulphate. I think the effect of it is rather lasting. It never does any harm and I have never seen toxic symptoms from large doses of it. I wasn't attempting of course, to prescribe treatment for convulsions, but confine my remarks to the use of a few drugs under certain conditions.

As to Dr. Ravenel's remarks, we have to be governed by our own experience and what it would take to cure pyloric spasms in Greensboro, it might not take in Asheville. (Laughter.) It may have been that none of those cases were hypertrophic pyloric stenosis, but I think

they were, and I think the stenosis is caused by the spasm, and I think the degree of relief you get in a given case depends on whether the hypertrophic stenosis or the spasm predominates, and the main argument for this belief is this: You have an infant that is born apparently healthy and begins to nurse and continues to nurse for four or five weeks, or six or seven weeks, and suddenly vomiting begins. If the hypertrophic pyloric stenosis is present at birth, why should the infant continue to nurse and then suddenly vomit? It is probably true that some was there all the time, from birth, but it was not sufficient to cut off the canal so that the food couldn't go through, but on account of the increased spasm, due to the food, the vomiting occurs and the milk is unable to leave the stomach through the pylorus.

I think there is such a thing as a pyloric spasm without much stenosis, but in most cases I think you have both and I admit in some cases you will not cure it with atropin, but I have had only one such case in the course of ten years and that child had 1/30 grain of atropin for ten days every four hours without much relief and was operated on and recovered.

One case was brought in that started vomiting at the beginning of the third week after having vomited for three days and was extremely dehydrated. I saw the case in consultation. We started with atropin, giving small doses for twenty-four hours without any relief. I suggested jumping the dose up to 1/50 grain. Someone said, "You will kill the child," to which I replied, "Is he more likely to die from the atropin or from starvation?" In a few hours there was relief and up to the present time the child is up to weight and height for his age.

BRIEF PEDIATRIC REMINISCENCES AND PROBABLE TRENDS

E. A. Hines, M.D., Seneca, S. C.
(Guest Speaker)

Just 25 years ago I was invited to present a paper on a pediatric subject before this association. The paper made no ripple on world events, but to be permitted to appear at all on the program of another State Society was a tremendous inspiration to me as a young doctor from an obscure village in South Carolina. As a native son of this great commonwealth I wandered over the nearby red hills of this section fifty years ago, and I recall vividly the day dreams I had then of the future. I did not visualize, however, the marvelous development we see about us today.

I am indeed grateful that in the 25 years my record has been such that you are willing to permit my name to appear on your program again. Suppose we borrow from Isaac A. Abt a bird's eye view of the happenings in pediatrics since I stood before this association at Charlotte in 1906.

It is a noteworthy fact that a quarter of a century ago not a half dozen men in America practiced pediatrics exclusively. Not a medical school had a separate department of pediatrics. Infant Welfare Stations had not been dreamed of. There were no public

health nurses, no special departments of child hygiene; the application of X-ray to diagnosis had not been developed. Basal metabolism was little more than a name and not understood. Lumbar-puncture as a means of diagnosis was occasionally employed, but not in general use. It is to the laboratory investigators that most of the advances in our science in the last quarter of a century are due.

Consider what has been added to our knowledge of diphtheria, poliomyelitis, cerebrospinal meningitis, infantile syphilis, rickets, tetany, diabetes, scurvy and other deficiency diseases. During this period the new science of immunology, serology and biological chemistry as applied to medicine have been developed. Better feeding and better hygiene are most important factors in the decline of infant mortality. The enforcement of quarantine and the education of mothers, better nursing and the omission of the indiscriminate use of drugs have had some influence in the reduction of the infantile death rate. E. L. Holt once wrote that in the future three types of pediatrists will be needed. First, the research man who is likely to be a full-time head of a department in a University Medical School; second, the man who applies the best knowledge in the treatment of sick children; and, third, the public health pediatrist, who will be a popularizer, and who will convey to the lay public and the general medical profession the latest and best advances in pediatric knowledge. He must not only be an administrator, but also an educator.

The specialty of pediatrics has arrived at a recognized position. There still may be those who think that it is not a specialty or that it is an unnecessary appendage in the division of medical practice. But the fact remains that child health has improved, infant mortality has been diminished in civilized countries, and important data have been accumulated concerning the anatomy, physiology, pathology, immunology, prophylaxis and treatment of childhood disorders.

It is only necessary to enumerate some of the advances which have been made in recent years. Children's hospitals and dispensaries have been established in all civilized communities. Clinical and research investigators are publishing their results in special journals in all important languages. School hygiene and health education in schools have made it possible to correct visual and postural defects, and have assisted in preventing the dissemination of contagious diseases from the school house. Mental tests have been introduced and the psychic status and development have been studied, and much knowledge has been accumulated concerning the correction of faults in child behavior. While breast milk is recognized as most suitable for young infants, nevertheless the increase of our knowledge concerning the chemical nature of the constituents of cow's milk and the requirements of the infant for elemental food substances has permitted a simpler and more rational basis for artificial infant feeding.

The progress of pediatrics in more recent times has been directed principally along the line of prevention. We need only mention the

success attained in the prevention of goitre and cretinism, and prophylaxis of diseases resulting from an excess as well as deficiency of food substances. The importance of hormones and vitamins in the maintenance of health, as well as in the prevention of disease, has been established. The prevention of rickets by proper food, sunlight, cod liver oil and activated ergosterol, and also the discovery that scurvy, beriberi and xerophthalmia could be prevented by the administration of certain accessory food substances, indicates a substantial progress. Advances have been made in prevention of diphtheria, tuberculosis, malaria, the louse born diseases and hookworm infestation.

The greatest practical achievement is indicated by the decrease in infant mortality. Considering the statistics of the City of New York we find in 1896-97 that the death rate for children under five years was 14 percent, while in 1921-22 the death rate was 9.6 percent. A similar reduction in infant mortality has occurred throughout the civilized world. The most striking fact is that during this period the deaths from diarrheal diseases have declined from 7,224 to 1,942. A consideration of this information alone, from the standpoint of practical results, would justify the existence of pediatrics as a specialty.

Pediatrics developed at first under the influence of pathology. When the conceptions of diseased tissue made rational diagnosis possible, the knowledge of children's diseases rested on a firm foundation. The advances in the fundamental sciences, which have contributed to general medical progress, have also permitted advance in pediatric knowledge. It may be said, however, that pediatricians themselves, in the last decade or two, have been active contributors in advancing the knowledge of disturbances of metabolism, processes of growth and development, infant hygiene and infectious diseases.

The development in pediatrics I have quoted did not just happen. It is the result of intensive effort in many lands, but to me it is amazing. I graduated from a good medical school 40 years ago after being there three years, but I never saw a sick baby. I never heard the well child problem mentioned, and I never witnessed a labor case. In less than a week I was busy in both these branches of medicine. It was not an uncommon experience at all for the then recent graduate. I recognized my limitations, however, and set about correcting them.

One day in the nineties a sample copy of a journal that was different came into my hands. It voiced an attitude of scientific optimism unbiased by the influence of proprietary medicine advertisers. It sensed the oncoming dominion of organized medicine in America. I refer to The Journal of the American Medical Association. Having been a medical editor for twenty years I am perhaps enthusiastic on this point. Again, one day in the nineties I left my quiet village practice and joined the ward-walks at the Hopkins with William Osler and others. On one occasion Dr. Osler stopped before a bed in which was a child convalescing from pneumonia.

The patient had received one dose of paregoric before being admitted and no other medicine. Dr. Osler said the treatment of pneumonia depended largely on the age of the doctor. If the doctor had just graduated he would have to resort to many poultices and perhaps 20 or 30 drugs. If in practice ten years this outfit might be cut in half, and if a practitioner of 15 or 20 years standing he could carry a patient through the entire course of the disease without a single dose of medicine, as he had done. The lesson to me proved to be invaluable and saved thousands of my patients from nauseous concoctions. Dr. Booker at the Hopkins then was one of America's splendid teachers in pediatrics. To watch him frequently draw his microscope beside the patient was an inspiration. Then he would call in the mother, many of them foreign born, and patiently explain the details of the simple feeding methods. This plan made a lasting impression as to the role to be played by a co-operating parent. I am speaking of events 33 years ago.

In the nineties I joined the Section on Diseases of Children of the American Medical Association. From that day to this I have kept up my membership, rarely missing a meeting. In those early days I came in contact with the giant intellects whose masterly foresight established pediatrics in America—Jacobi, Holt, Rotch, Chapin, Kerley and many others. In 1919 Jacobi died at the age of 89. I went to his funeral in the Academy of Medicine in New York, and it was indeed an impressive occasion. Although it was in the summer, when New York goes away for a vacation, this funeral was a notable one. Automobiles had not displaced other modes of transportation then as now so that as far as the eye could see in all directions carriages, buggies, and autos were lined up. The great and the near great were there in an immense throng. Reginald Sayre, son of the founder of orthopedics in America, was master of ceremonies, and looking down at the casket said, "So long as children continue to be born they will be indebted to Abraham Jacobi." Naturally, I followed many of the great clinicians I saw and heard to their clinics at home—north, east, midwest, farwest, south—and also in time ventured into foreign lands. I still adhere to that custom.

At various periods some centers in America enjoyed the limelight for certain developments. Thomas Morgan Rotch was an inspiring teacher at Harvard, and I went there repeatedly, but I never could master percentage feeding. I felt my inferiority complex acutely until a distinguished member of this Section, Dr. J. B. Sidbury, came over to South Carolina not long ago and told us this: "Infant feeding is now just about fool-proof."

Fortunately pediatrics has not become wholly regional. We are, however, profoundly interested in its progress in the south, and many things have transpired to emphasize this attitude. The Section on Pediatrics of the Southern Medical Association has been an important factor. I was a charter member of the faculty of the Southern Pediatric Seminar at Saluda, N. C., and this institution has added tremendously to the onward march of southern pedi-

atrics. The pioneer postgraduate courses inaugurated by the University of North Carolina, co-operating with the medical profession here, is known throughout the United States. There are of course numerous schools in the south now well abreast of pediatric teaching anywhere.

PROBABLE FUTURE TRENDS

Pediatrics is well established throughout the world. Its crowning glory has been in the domain of preventing disease and in approaching with enthusiasm the avenues toward promoting the general welfare of the future citizen. A most promising and inviting problem is that of nutrition. Here in the south it is a major problem. In South Carolina we have initiated an extensive program of food research sponsored by an able pediatrician, Dr. William Weston. The State has appropriated the funds, and laboratories have been established in connection with our State Medical College at Charleston. The observation that goiter was a negligible disease in South Carolina was our point of attack, and it was discovered that the iodine content of South Carolina grown products was much higher than that of many other known regions, especially the goitrous belts. Dr. Roe E. Remington is the director of these laboratories, and he and his colleagues have done much work along nutritional lines in addition to the goitre problem.

(Show slides.)

American pediatrics owes much to many special societies, but there has come into being the American Academy of Pediatrics. This new organization bids fair to stimulate future development on a broader scale than has yet been possible.

I believe that the recent White House conferences, called by President Hoover in the interest of child health and protection, will mean more to America than any similar movement ever consumated. To me it was an extraordinary experience. The charter formulated there is worthy of a place on every child welfare program. It should become a world famous document.

THE CHILDREN'S CHARTER

President Hoover's White House Conference on Child Health and Protection, Recognizing the Rights of the Child as the First Rights of Citizenship, Pledges Itself to these Aims for the Children of America.

I. For every child spiritual and moral training to help him to stand firm under the pressure of life.

II. For every child understanding and the guarding of his personality as his most precious right.

III. For every child a home and that love and security which a home provides; and for that child who must receive foster care, the nearest substitute for his own home.

IV. For every child full preparation for his birth, his mother receiving prenatal, natal, and postnatal care; and the establishment of such protective measures as will make childbearing safer.

V. For every child health protection, from birth through adolescence, including: periodical health examinations and, where needed, care of specialists and hospital treatment; regular dental examinations and care of the teeth; protective and preventive measures against communicable diseases; the insuring of pure food, pure milk, and pure water.

VI. For every child, from birth through adolescence, promotion of health, including health instruction and a health program, wholesome, physical and mental recreation, with teachers and leaders adequately trained.

VII. For every child a dwelling place, safe, sanitary, and wholesome, with reasonable provisions for privacy; free from conditions which tend to thwart his development; and a home environment harmonious and enriching.

VIII. For every child a school which is safe from hazards, sanitary, properly equipped, lighted, and ventilated. For younger children nursery schools and kindergartens to supplement home care.

IX. For every child a community which recognizes and plans for his needs, protects him against physical dangers, moral hazards, and disease; provides him with safe and wholesome places for play and recreation; and makes provision for his cultural and social needs.

X. For every child an education which, through the discovery and development of his individual abilities, prepares him for life; and through training and vocational guidance prepares him for a living which will yield him the maximum of satisfaction.

XI. For every child such teaching and training as will prepare him for successful parenthood, home-making, and the rights of citizenship; and, for parents, supplementary training to fit them to deal wisely with the problems of parenthood.

XII. For every child education for safety and protection against accidents to which modern conditions subject him—those to which he is directly exposed and those which, through loss or maiming of his parents, affect him indirectly.

XIII. For every child who is blind, deaf, crippled, or otherwise physically handicapped, and for the child who is mentally handicapped, such measures as will early discover and diagnose his handicap, provide care and treatment, and so train him that he may become an asset to society rather than a liability. Expenses of these services should be borne publicly where they cannot be privately met.

XIV. For every child who is in conflict with society the right to be dealt with intelligently as society's charge, not society's outcast; with the home, the school, the church, the court and the institution when needed, shaped to return him whenever possible to the normal stream of life.

XV. For every child the right to grow up in a family with an adequate standard of living and the security of a stable income as the surest safeguard against social handicaps.

XVI. For every child protection against labor that stunts growth, either physical or mental; that limits education, that deprives children of the right of comradeship, of play, and of joy.

XVII. For every rural child as satisfactory schooling and health services as for the city child, and an extension to rural families of social, recreational, and cultural facilities.

XVIII. To supplement the home and the school in the training of youth, and to return to them those interests of which modern life tends to cheat children, every stimulation and encouragement should be given to the extension and development of the voluntary youth organizations.

XIX. To make everywhere available these minimum protections of the health and welfare of children, there should be a district, county, or community organization for health, education, and welfare, with full time officials, co-ordinating with a statewide program, which will be responsive to a nation-wide service of general information, statistics, and scientific research. This should include:

(a) Trained, full-time public health officials, with public health nurses, sanitary inspection, and laboratory workers.

(b) Available hospital beds.

(c) Full-time public welfare service for the relief, aid, and guidance of children in special need due to poverty, misfortune, or behavior difficulties, and for the protection of children from abuse, neglect, exploitation, or moral hazard.

For every child these rights, regardless of race, or color, or situation, wherever he may live under the protection of the American flag.

ACRODYNIA: WITH CASE REPORT

C. A. Street, M.D., Winston-Salem

Various names have been proposed for this condition. Among them Swifts Disease, pink disease, erythredema and dermatopolyneuritis. None are entirely satisfactory because of a lack of some distinguishing etiological or pathological feature upon which to base a name.

Most writers use the term Acrodynia. This is the name which Chardons, in 1830, gave to a disease which was epidemic in Paris at that time and affected persons of every age. The disease as it is found at the present affects children, chiefly between the ages of three months and three and a half years, and rarely over seven years of age. So one might raise the question as to whether Acrodynia as we see it today is the same disease to which Chardons gave the name. Weston is convinced they are the same, at least they are no doubt closely related.

To Dr. H. Swift of Australia belongs the credit of being the first to describe the condition as it occurs in children in a paper entitled "Erythroedema," which he read before the Australian Medical Congress in 1914. Dr. Bilderback of Portland, Ore., presented a paper in 1920 entitled, "A Group of Cases of Unknown Etiology and Diagnosis," and he is given credit for being the first to recognize and report a series of cases in the United States. Weston later reviewing these cases and giving them the name Acrodynia.

The cause of the disease is unknown. Some believe it to be due to an avitaminosis, some to a glandular dysfunction, and a few have thought it might be caused by a peculiar anaphylactic phenomenon. Most believe it is due to an infection located in the upper respiratory tract.

There is very little to be said concerning the pathology of Acrodynia, because there have been few autopsies and these have shown very little of significance. There is hyperplasia of the epidermis and some hyperkeratosis but little if any real edema of the corium. Warthin has reported edema of the brain, of the meninges, and edema and congestion, but the central nervous system was normal. Death in practically all cases has been due to complications, the most frequent being pneumonia. The symptoms usually come on insidiously, and it may be several weeks before the case is fully developed. In a typically well developed case Bilderback's six P's give the symptoms. Briefly stated they are: 1, pain; 2, pink hands and feet; 3, peeling; 4, prostration; 5, perspiration; 6, parathesia, and Clark has added a seventh, photophobia. The child at first becomes less playful, is fretful when disturbed, the appetite becomes poorer and he sleeps less well. Soon there is, in most cases, a rash of a macular or papular type on an erythematous background, usually covering the entire body, but finally in most cases becoming limited to the hands and feet. Here the rash is most marked and constant. The hands and feet are cold and clammy and appear swollen, although there is no real edema. An erythematous rash, most marked at the tips of the fingers, gradually fades out until at the wrists and forearms it entirely disappears; without, however, any line of demarcation as in Pellagra. This is one of the most characteristic features of the disease. The only constant feature of the rash on the body is, as one writer expressed it, "its variability," as it may come and go at irregular intervals. As the rash fades there is more or less desquamation and pigmented spots usually occur. There is a profuse sweating of the entire body, it often being necessary to change the child's clothing several times daily. There is great itching and burning of the hands and feet so that the child continually scratches and rubs at them. This itching and burning of the hands and feet and to a less degree of the entire body, seems to be the chief cause of the irritability and distress and is largely responsible for sleeplessness.

The child's muscles become flabby and weak and there is usually a marked loss of weight because of the child's refusal to eat. The facial expression is one of great wretchedness, and as Weston says,

"such a picture of abject misery once seen, will never be forgotten." The child will not play, it will not smile, but usually sits with its head between its feet or lies with its face buried in the pillow. There is marked photophobia and lacrimation, usually a more or less severe nasopharyngitis. The hair frequently falls or is pulled out. The teeth may loosen and fall out, either with or without a stomatitis, which frequently occurs. There are rarely symptoms referrable to the gastrointestinal tract except the marked anorexia.

At times there may be a slight fever, but this is probably due to the complications. The laboratory findings are negative except for, perhaps, a trace of albumen in the urine, and often a slight leucocytosis.

The diagnosis is not always easy, because the symptoms are by no means constant in all cases. One should differentiate between Acrodynia and the infantile type of Pellagra. Pellagra usually begins in the spring or fall. Acrodynia may occur at any season. Acrodynia has no tendency to recur; the rash is less persistent, and typically involves the entire body in an erythematous papular type of eruption; and the eruption on the hands and feet is not sharply demarcated. It does not produce insanity, but does cause a state of acute wretchedness, and a very marked itching and burning not present in Pellagra. Finally, there is said to be no mortality in uncomplicated cases of Acrodynia, while in Pellagra there is a very considerable mortality. Therefore, the prognosis as to life is good, the disease apparently being a self-limited one. Wood gives the duration of the disease as from 3 to 12 months. But, although in most cases ultimate recovery is assured, as Sweet says: "The path leading thereto is a long and painful one." It is truly a trying disease for all concerned—patient, physician and parents.

Various treatments have been used in Acrodynia other than the purely symptomatic. It is doubtful if any of them are of much value. Sweet particularly claims excellent results by the use of Ultra Violet light. Rodda, among others, considers the source of infection in the tonsils and reports success with the removal of the tonsils and adenoids. Vipond uses a vaccine made from an organism isolated from the nasal secretions, and reports good results. McLendon reported one case apparently cured by the use of yeast, viosterol and a diet rich in vitamins. Swift believed some of his cases were benefited by small doses of thyroid. Wood considers thyroid contra-indicated and Weston states that no results were obtained by the use of glands of internal secretion.

The treatment in general is directed at the diet and the relief of symptoms. Special measures have not proven successful. A diet containing green vegetables, fruits and fruit juices should be given. At times feeding may have to be done by gavage. Probably small portions of food given often is best for the anorexia. Preparations rich in vitamin B and viosterol or cod liver oil should be given. The Ultra Violet light should help, although possibly only for its tonic effect. For the itching and local irritation, cold calamine lotion applied often is probably the most effective remedy. If this

can be relieved the child will usually sleep. Drugs, such as the bromides, chloral and luminal, are not generally considered to be of much use. Luminal in rather large doses will certainly give some relief.

Case report:

This child, a girl, aged 18½ months, was seen first on August 3, 1930, in the home, because she had lost her appetite and had been gradually becoming very irritable and fretful, and did not sleep well. She was nursing the breast, but had otherwise been on a reasonably good diet, certainly as good as that of the average baby of her age. She weighed 23 lbs., 6 oz., but was of small stock and had a small body framework. She had not been ill since the previous winter, when she had otitis media. Past history otherwise negative. Family history was negative. She was the only child. Father's Wasserman negative. Physical examination was negative, at this time, except for a slight rhinopharyngitis. There was no rash, had been no sweating, and no noticeable itching. Five days later she was seen in the office, at which time a tuberculin test was given and blood was taken to examine for malaria and typhoid, all of which tests were negative. There was a faint trace of albumen in the urine. Blood counts were within normal limits. The child was becoming much more irritable and fretful, still the physical examination showed nothing more than the first examination. There was no rash, and while there was some sweating it was not considered very unusual. She was given Ultra Violet light treatment and put on large doses of cod liver oil, and given a vitamin B preparation, none of which seemed to have any effect. About one week later she was seen by Dr. Glenn Pool, at which time she had a generalized rash, and he suggested Acrodynia as the diagnosis. The sweating became more profuse, the itching became more intense, and she ate only what she was practically forced to eat. She refused to play, never smiled, and had a most miserable and dejected appearance. She slept less and less, and her parents became almost desperate. The rash was very variable, I never saw her with a true Acrodynia rash, but saw her on one occasion while she had the the disease when she had a rather severe urticaria.

When in bed she buried her face in the pillows and always tried to avoid the light, as the photophobia and lacrimation became more severe. The hands and feet became swollen and were cold and clammy, and the itching became more severe as the disease progressed. The hair did not fall out, and there was only slight desquamation. She became unable to walk, although she did not lose a great deal of weight. And at no time was there any rash limited to the hands and feet, one of the most characteristic symptoms of the disease, but the other symptoms were so pronounced that there was no doubt as to the diagnosis. She was kept on Vitavose, cod liver oil, and as liberal a diet as could be given her. Calamine lotion was used locally and large doses of luminal in an effort to make her rest. And the mother said the luminal seemed to give her more relief than anything else. She was given four Ultra Violet light

treatments without apparent effect, and the parents did not wish to give her more.

She became ill in June, 1930, and was apparently well by January 1931, the disease extending over a period of between 7 and 8 months. The child is now, April 9, 1931, perfectly normal as far as can be made out, although somewhat under weight, as the mother refused to wean her until she recovered from the Acrodynia.

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DISCUSSION

Dr. Tyree Wyatt, Raleigh: Because of the comprehensiveness of the paper, one would have to depend on his own personal experience, of course, to discuss it, and because of my large series of one, my remarks will be very brief. That case ran a rather typical course and was entirely well within a period of three or four months.

I will tell you, however, the result of a conversation which I had last week with Dr. Bilderback at the American Pediatric Society's meeting in New Orleans. Dr. Street referred to Dr. Bilderback as furnishing the series of cases from which Dr. Weston named the disease, and he told me of the rather unique instance in which a man was able to name a disease as a result of reviewing a group of cases which he had never seen. Dr. Bilderback, in Portland, Oregon, apparently feels he has more cases of Acrodynia out there than there are, perhaps, in any other region of the country, and he is entirely unable to explain this regional aspect of this incidence. He feels that as a result of his observation of the cases there, the disease is probably not a deficiency disease, but rather an aftermath of acute infection. He thinks that following acute infections of perhaps different sorts, usually upper respiratory infection, there is an infection of the spinal cord and sympathetic nervous system and peripheral nerve roots.

It was rather interesting to me as I went over the literature hurriedly that there was considerable variation in the descriptions of the pathology in the cases which have been studied.

Warthin, for instance, reported practically no changes in the central nervous system, finding some suggestion of edema of the meninges, while Paterson and Greenfield, in the British Archives of Disease in Childhood, reported finding definitely inflammatory processes, both in the cord and in the spinal roots. His findings were also confirmed in a more recent paper by Kevnohan and Kennedy. Such a marked difference in the pathological findings rather suggests that all of the cases which have been described as Acrodynia possibly do not belong to entirely the same group.

Closing discussion on Acrodynia, with case report.

Dr. C. A. Street: This was rather interesting to me because I had never seen a case and didn't know what it was. I think six or eight doctors saw this one, and none of them knew what it was. There was no discoloration of the fingers and toes at any time except just before it got well. The fingernails were a little bluish, but at no time did I ever see it when it had any rash to speak of, but it was Acrodynia.

I have seen pellegra in a youngster two years old and there was no resemblance between the two cases, and I think the history is so different that while there seems to be little difference, still they are different.

There is a great deal of literature by the French writers on Acrodynia, but the disease we speak of as Acrodynia is not quite the same in all its manifestations as the Acrodynia described in France and England.

Duke University Medical School presented the following clinic:

No. 1—Cretin by Dr. A. H. London, Jr., Durham.

No. 2—Endocrine Disturbance (Hyper pituitary, Anterior lobe) in one of a pair of twins, by Dr. Craven.

No. 3—Actinomycosis, by Dr. Craven.

We are unable to get a report of the cases presented by Dr. Craven, and the report of cases on Cretin presented by Dr. London follows:

PRESENTATION OF CASES, PEDIATRIC STAFF, DUKE UNIVERSITY HOSPITAL

Dr. A. H. London, Jr., Durham

Child, a white female; first seen in August, 1930; four years of age at that time.

Chief complaint: Slow growth and constipation.

Past history: Full term, normal delivery, 9¾ lbs. at birth. Breast fed. No cod liver oil until one year of age. Development: Seemed to gain well during first year and at the end of the first year seemed to be overweight. Did not walk until two years. First tooth at two years of age. Has not yet learned to talk. Mumps, 1929; whooping cough, 1929; colitis, 1928. Has never been vaccinated.

Family history essentially negative except a paternal uncle is mentally retarded.

Present illness: Since age of one year child has grown very slowly. She has not learned to talk and does not seem as bright as other children. She has marked constipation, having no bowel movement without use of cathartics, and sometimes these are used in adult doses without effect.

Physical examination: Child is quite small for her age. Appeared not to be over two years old. Head is large. Facial expression blank, eyes set wide apart. Bridge of nose flat. Skin seems thick, the hair is scant, dry and coarse. The anterior fontanelle is open, measures 1½ by 1 cm. The tongue is larger than usual, though not markedly so. The thyroid gland can not be felt. The heart and lungs are normal. The abdomen is quite large. There are no masses and no rigidity. The hands are short and stubby. The toes are also short. Weight, 27:4; height, 32½ inches.

Diagnosis of Cretinism was made and the child given thyroid extract. She is now taking three grains of thyroid extract and this is to be increased to five.

Since being on thyroid extract she has learned to talk, has become friendly and plays around the house. Does not just lie around and sleep as she did before. The constipation cleared up very quickly without any cathartics. The anterior fontanelle has closed. The hair has become much thicker and is fine and glossy. Her skin is of a fairly normal texture and her expression is much brighter.

The slides are kodak pictures when first seen.

(Slide). You can see the abdomen is quite large. Face is rather thick and pudgy. She did not have the markedly large tongue sticking out of the mouth that is usually described.

One of the points in showing this child is the fact that the parents of this child were given a bad prognosis, to the effect that she was mentally retarded and would never grow up at all well, and there wasn't any use in doing anything. She was seen by many physicians who gave this same prognosis, and she wasn't at any time given thyroid therapy. She was allowed to grow to four years before such administration. After they get to this age treatment is not so successful as in the beginning, but since September she has shown a marked change in that the fontanelle has closed and the hair has become thicker and is glossy and the skin is not thick any more, the constipation has cleared up, she has learned to talk, has grown three inches in height, and has a much brighter expression.

SECTION ON GYNECOLOGY AND OBSTETRICS

Dr. R. T. Ferguson, Charlotte, *Chairman*

WEDNESDAY, APRIL 22, 1931—2 P. M.

The Chairman of the Section, Dr. R. T. Ferguson, Charlotte, called the Section meeting to order in Lecture Room A, Washington Duke Hotel, at 2 P. M.

Gentlemen, I have the pleasure of presenting the first essayist of the afternoon, Dr. George Johnson, Wilmington.

THE USE OF RABBITS IN THE ASCHEIM-ZONDEK TEST FOR PREGNANCY

Dr. George Johnson, Wilmington

The title of this paper is not absolutely correct, as immature mice are used by Ascheim-Zondek instead of rabbits. Friedman, to the best of my knowledge, first used the rabbit instead of mice. I became interested in the work through Dr. P. F. Schneider of Evanston, Ill., who was making a series of tests this past year while I was in Chicago. He made a report of 300 cases in the January, 1931, issue of Surgery, Gynecology and Obstetrics.

It is not so very often that an early diagnosis of pregnancy is absolutely essential to the life of the patient, but we all have had patients that whether they were or were not pregnant was of the utmost importance to them. Until this test was reported, we have had no reliable tests for pregnancy. All other tests depended upon metabolic and serological changes not specific for pregnancy, as the Abderhalden reaction, the Maturing test, the Antithrombin test, the Epinephrim test, etc. In the past we have had to depend upon palpation and symptoms for a diagnosis, but as a rule when we can tell by these means it is rather late to tell a patient whether or not to get married. To distinguish between a pelvic condition requiring an operation and a pregnancy that needs to be let alone is at times very difficult. It is rather embarrassing to have to explain a pregnancy that was not suspected before operation.

This test also should prove a valuable aid in hydatiform mole. If a choreo-epithelioma is developing an early hysterectomy is essential, but every case of mole does not require hysterectomy. After a mole, the patient should be kept under observation until the test returns negative. Then we can be assured that there is a cessation of choronic proliferation. Robert Meyer and his assistant Roessler (1) first observed a positive reaction from the urine in a case of metastatic choreo-epithelioma. In their case 1/70 cc. of urine was sufficient to give a positive reaction. The test is negative from one to eight days after delivery (2). There has been sufficient experimental work done

since 1928 when Ascheim and Zondek (3) published their reports to establish the value of the tests. In 1930 Ascheim (4) reported a series of 1,000 tests with nearly 98% accuracy. This degree of accuracy has been substantiated both in this country and abroad.

There is a decided advantage for the average person using rabbits in place of mice. With rabbits only one 12 to 14 weeks old has to be used, while in the procedure as outlined by Ascheim (5), five immature mice of three weeks old are used. In using rabbits you can get by with a smaller colony, both on account of the number used and because of the fact that the rabbit can be used over a longer age period. Another advantage is that you do an autopsy on the rabbit in two days, while the mice requires five days. In the rabbit there is one injection and in the mice three daily injections. Before taking up the method of procedure it will be well to know something of the sex habits of the rabbit. The rabbit, as a rule, does not copulate, or go into heat, until the age of five months during the summer, and six to eight months during the winter. (Hammond & Marshall.) The rabbit has no regular cycle and does not ovulate unless it copulates, and following copulation ovulation occurs in eight to ten hours. (Freeman M. A.) (5).

The technique is to select a female rabbit from 12 to 17 weeks old which has been kept separated from the male. Eight cc. of the first morning voided specimen of urine is slowly injected into the vein of the rabbit's ear. Attention is paid to cleanliness, but not to sterility. If the urine is cloudy it can be filtered. I have had no mortality thus far. One became unconscious, but her heart kept beating and about five minutes of artificial respiration brought her back to normal. I attributed this accident to injecting the urine too fast in a 12-weeks-old rabbit. In 48 hours the rabbit is autopsied and the ovaries inspected microscopically. Microscopic sections can be made, and I have made sections on some of the ovaries, although it is not necessary. If negative the ovaries remain small in size and show no change. If positive, from 1 to 14 corpa-hemorrhagica and corpa lutea are present in each ovary.

I have made the test in 16 cases and thus far my results have been 100% accurate. None of my cases were experimental, all were interested enough to pay for the test. I am sure I could have had a much larger series of tests if I had been able to make it on the ones that were just curious. Naturally the majority were willing to let nature tell them cheaper than I could, but it was a great pleasure to me to be able to tell them that there was a fairly accurate test that could be made.

ABBREVIATED REPORT OF FEW CASES

Case 1. Single, 22 years old. Menses regular 28-day type, last menses April 3. I saw her on May 10. Admitted one exposure in the middle of April. Pelvic examination revealed retro displaced uterus, cervix hard and normal size. Rabbit test negative. Within one week after getting report had normal menstruation and also had

normal menstruation the following month. This was possibly a delayed menstruation due to fear.

Case 4. Para 3, 32 years old. No menstruation since birth of last baby eight months ago. Suspected pregnancy on account of the smell of coffee made her nauseated. Wished to take an extensive automobile trip if not pregnant. I could not make the diagnosis of pregnancy on pelvic examination. The rabbit test positive, the trip postponed, patient is now feeling life.

Case 8. 29 years old. No children, married six weeks. Menstruation always irregular, often three or four months amenorrhea. Last menstruation five months previous. Referred by her physician for operation for fibroid, if not pregnant. Pain in lower abdomen for the past three months. Backache for the past several years. Complained of hot flushes and being very nervous. Pelvic examination revealed the cervix moderately soft, pointing towards the bladder. The uterus size of eight-weeks pregnancy fixed in the pelvis with a hard nodular mass the size of an orange on the fundus. The doctor referring her did not care to ask the husband if he had been indiscreet before marriage, neither did I. The rabbit test was positive. Her doctor reported to me two months later that the patient was feeling movements.

Case 9. Single, 21 years old. Menses as a rule regular, occasionally two weeks past due. Admitted exposure the last of August but none since. Normal menstruation in September, which was the last. The last of October her physician made a pelvic examination, but was not sure of pregnancy. He sent me a specimen of urine to be injected. The rabbit test was positive. In about three weeks this same patient, according to her physician, was admitted to the hospital with a temperature of 105 after having had a chill. She was also flowing and very tender in the lower abdomen. After the temperature subsided, currettment revealed placental tissue.

Case 12. Para 6, 34 years old. Menses regular 28-day type. Last period November 3. I saw her December 15. One year ago I ligated her tubes. The patient was very much incensed and insisted that she was pregnant, because she has never gone over before and was nauseated. She accused me of doing poor work. Pelvic examination on December 15 was negative, but I did not feel any too confident that she was not pregnant. I made the rabbit test and before I autopsied the rabbit she called up to tell me that she was unwell and that I need not go on with the test. I had already injected the rabbit, so I decided to kill it anyway. The test was negative.

Case 16. Para 2, age 28. No menstruation since baby was born five months ago. In her last pregnancy she had pre-eclamptic symptoms with hypertension and albuminurea. The last of February she became nauseated and the albuminurea and hypertension were aggravated. Pelvic examination by her physician was indefinite as to pregnancy. He sent me a specimen of urine to be examined. The rabbit test was positive. On admittance to the hospital her blood pressure was 180 systolic, 108 diastolic and had 2 plus albumin with casts.

A theurapeutic abortion was done March 16 and placental tissue was found.

CONCLUSIONS

1st. The Ascheim-Zondek test is a fairly accurate procedure for establishing the diagnosis of pregnancy.

2nd. For the clinic requiring only a few tests per year, it is more expedient to use the rabbit instead of mice, provided subsequent tests establishes their reliability.

1. Ztsch f. Gebuntsch u Gynak 96, 516, 1929.
2. Schnider, P. F., Surg. Gyn. and Ob. L 2, 56, 1931.
3. Klinische, Wochenschrift, 7, 1404-1453, 1928.
4. Amer. J. Obs. & Gyn. 16, 335, 1930.
5. Friedman, M. A., Amer. Jr. Physol. 1929 Xv 617.

THE CHAIRMAN: The paper by Dr. Johnson is open for discussion. Dr. Ross.

DR. R. A. ROSS, Durham: The section is fortunate in having Dr. Johnson present such a live subject at this time, and one which is of very recent date. The question of diagnosis of pregnancy is something that we have all sought for for a great many years.

The Ascheim-Zondek seems to be the most satisfactory solution that has ever been presented. The question of sex harmones, of course, has been of tremendous interest for a great length of time, and recently the association with these sex harmones of anterior pituitary has gained more and more prominence and more and more discussion.

We have been running the Ascheim-Zondek at the Duke Hospital in a few instances, using the procedure as they outline it, with the mice. As he has said, the trouble there is getting the mice. They have to weigh over 5 grams and not under 8 grams. They have to be immature and their ovaries have not come into function. And this modification that has been brought out is by far more reasonable and more easily handled by men in all parts of the country.

There is an article in the last issue of the American Journal of Obstetrics and Gynecology, which outlines the same procedure as Dr. Johnson has so well done, and which gives a hundred per cent in something over 30 or 40 cases, so Dr. Johnson still has possibilities, it seems, of going on to even greater numbers.

The idea, of course, is based on the fact of sex harmones. When pregnancy occurs, there is no further need of it, and it is eliminated through the urine. Now the advantage of this thing is that the earlier the pregnancy is, the more likely it is to be positive. The only thing that can confuse it with normal pregnancy is some of the complications of pregnancy; for instance, in ectopic pregnancy you get this reaction, and also, as he has said, in the hydatid mole.

I recommended it very highly for use. The trouble with the mice, as I have outlined, is that they are hard to get and hard to keep. We got in a fresh shipment of immature mice, but for some reason—even in a religious institution—they were placed in with some other

mice, and they were not immature virgin mice—they had strayed (laughter)—so that is likely to happen.

Then another fault is that it takes from four to five mice to get this thing done, and the ovaries so small that actually in the first two cases that we ran we didn't know when we had it; but with the use of rabbits you can tell quite readily.

Now the question of whether or not the type of rabbit that he used, that you ought to use rabbits that had not been mated—of course that is true, but it is not altogether impossible to use other rabbits; for instance, a rabbit that has just had a litter is probably equally as desirable as one that has not ever had a litter. Then if you put the rabbits away for ten days that the gestation period of a rabbit is so short that in ten days you can tell by palpation that the pregnancy does exist, so that you can either exclude them or use them, as the case may be.

If you haven't got an unmated rabbit, why you can put them away for a period of time and they are readily available. (Applause.)

THE CHAIRMAN: Any further discussion of Dr. Johnson's paper? Dr. Proctor.

DR. I. M. PROCTER, Raleigh: I have not had much experience in the use of rabbits in these tests, but last summer while in Vienna I did have some experience in a laboratory there in using mice.

It seems to me it would be interesting to talk a little bit more about the hormone and what hormone it is. Really the substance that is underlying this test is the hormone secreted by the anterior lobe of the pituitary. As you remember, there is an epithelial group of cells there, and this anterior lobe secretes three types of hormones: One that controls body growth and development, with under-production of the hormone there is a tendency to dwarfing. If there is an over-production of the hormone a tendency to giantinism. The other two hormones have been named Prolan A and Prolan B. These hormones are secreted by the anterior lobe and they are present in the fetal blood, in the placenta, in the embryo and very strongly present in the urine of the patient.

The hormones do not act on the uterus; they act on the endometrium through the ovary. We might call the anterior pituitary then the motor, the ovary the rheostat, the endometrium (in the non-pregnant state) the electric light bulb. The Prolan A acts on the follicle; the Prolan B acts on the corpus luteum. The follicle stimulates the endometrium to growth up to the point almost reaching maturation and the corpus luteum then completes the maturity of the endometrium and causes its desquemation.

Of course we will not have any action unless we have an ovary, for the anterior pituitary hormone does not act upon the uterus or anything except the ovary. It stimulates the follicle and stimulates the corpus luteum in the ovary.

There are three diagnostic points in the ovary of the mouse, first, the development and maturation of the follicle; second, the hemorrhagic follicle and third, the atreptic corpus luteum. Those things are seen microscopically. I have done the test myself and it sometimes is

a bit difficult. One not familiar with mice wants to be sure he has females.

I have at present under observation a patient who came in yesterday morning, in whom this test is indicated. She is a Para two, thirty-one years of age. She has menstruated regularly. Her husband is stationed at some other point and she has seen him on only two occasions, Thanksgiving and Christmas. Two weeks ago she developed a pain in the right side, and this pain has been constant, a dull aching pain with some pressure. She called a physician and she and her physician both noticed an enlarged abdomen, extending almost up to the umbilicus, about the size of a four and a half month's pregnancy. She felt no movement and the physician could hear no fetal heart. I examined the patient and could not make out the outlines of this mass, except indistinctly. I could feel nothing in the pelvis except the mass that extended up to the umbilicus. I brought over a specimen of urine yesterday to Dr. Ross and he is running the test now out at his laboratory at Duke Hospital. It will take five days.

I examined the patient, however, this morning under an anesthetic and I do find a small mass just above the bladder. I cannot separate it entirely from the other. My opinion is that the patient is not pregnant, although she has an enlarged soft uterus and very soft partly-discolored cervix. I think she has a right ovarian cyst, with a soft enlarged uterus.

These are the type of cases, together with the early cases of pregnancy in which this test is indicated.

THE CHAIRMAN: Any further discussion of Dr. Johnson's paper? If not, Dr. Johnson, will you close?

DR. JOHNSON: I wish to thank you for the discussion of the paper. I think we should be careful with this test until we are absolutely satisfied that it is going to work out with the rabbits. I think it is well at the present time to stick to the young rabbit. Palpation of the abdomen of a rabbit might be all right to see if she is pregnant, but I don't believe my sense of touch is that well developed.

What I have done in Wilmington is to stock two or three young boys with rabbits and pay them extra for getting certain types of rabbits that I want. However, if we find rabbits are just as satisfactory by keeping them separated for ten days, it will certainly be a financial saving. But at the present time, until it has been worked out experimentally, I think we had better stick to what we know, because as sure as we tell a woman she is pregnant by this test and she is not pregnant, we have got something to answer for.

I appreciate Dr. McNider's remarks very much, and as to pregnancy and labor being a physiological process, I am inclined to agree with Dr. DeLee, it is a physiological process that very often ends in pathological results. It is nothing that tears the mother and the family as much as pregnancy, and the bad results that we can get from deliveries are many.

In regard to the anterior pituritary on which the Ascheim-Zondek test is based, further work I believe will revolutionize our present conception of the glands. There is an article by Flumann; I think it is

in the American Gynecology and Obstetrics about three months ago; which is very good, if you are interested in this work. I feel that working along these lines is going to eliminate about nine-tenths of our gland products. A lot of the tonics we are giving as a stimulus to the ovary will probably contain from zero to give female sex hormones.

THE CHAIRMAN: The next paper is "Cardio-Vascular Renal Disease During and After Pregnancy," by Dr. J. S. Brewer of Roseboro. Dr. Brewer.

CARDIO-VASCULAR RENAL DISEASE DURING AND AFTER PREGNANCY

J. S. BREWER, B.S., M.D., Roseboro

The classification of the intoxications and renal disturbances of pregnancy is exceedingly difficult. In the present state of our knowledge an etiological classification is impossible as the exact cause of many of these affections is shrouded in doubt. A pathological classification is unsatisfactory. To include all renal and vascular changes during pregnancy under the term "toxemias of pregnancy" is inaccurate as in many of these affections there is no alteration of the state of the blood as is implied by the term toxemia.

For practical study and working purposes it is my custom to consider them as follows:

1. Pre-eclamptic and eclamptic toxemia.
2. Albuminuria and nephritis of pregnancy.
3. Cardio-vascular renal disease during pregnancy.

The first two groups are not considered in the scope of this paper. We are concerned in this discussion with the third and last group. Cardio-vascular renal disease may be considered under three heads: (a) heart, (b) arteries, (c) kidneys, accordingly as to whether the cardiac, vascular or renal manifestations predominate. This group in a way overlaps the first two groups, but is, I think, justified because it is not an intoxication as is the first group and because the second group is meant to include both the cases of renal fatigue during pregnancy and those of frank nephritis unattended by manifest cardiac and vascular changes. The cardio-vascular renal group has been estimated to constitute from twenty-five to forty per cent of the so-called "toxemias of pregnancy" (1). It is perhaps well to remind you that we are not discussing a condition that is confined to the pregnant state. Rather we are talking about a clinical syndrome that is met in the male as well as in the female and in women who have never borne children. In other words, we speak of pregnancy complicated by cardio-vascular renal disease, a very serious complication that materially increases the risk of pregnancy and is itself aggravated by the pregnant state.

Cardio-vascular renal disease may be considered essentially a degenerative process and may manifest itself before, during and after a given pregnancy. There are cases in which degenerative changes

are difficult to demonstrate and which suggest that there may be some pressor agent liberated during pregnancy which acts in some as yet unknown manner. This possibility offers an attractive problem for investigation.

What is known about the etiology of this condition? One can only answer in a general way. Pre-existing nephritis is perhaps the factor of first importance. Eclampsia probably. The stress and strain of repeated pregnancies plays an important part, particularly if suffered without adequate prenatal care. Focal infections probably have some influence. And lastly, over-indulgence during pregnancy is beyond doubt a contributing cause, especially in the presence of previous disease.

The pathology manifests itself in kidney, blood-vessel and heart changes. There are the usual evidences of renal damage which may be glomerular, tubular or interstitial. There may be sclerotic changes in the arteries. Sometimes there is not. There may be degenerative myocardial changes. Oftimes there is cardiac hypertrophy.

The clinical syndrome of renal, vascular and cardiac disease with superimposed pregnancy may manifest itself in various ways. Previous to pregnancy, a given patient, while a potential nephritic, may be living in health without any manifestation of disease. And also, so insidiously does this condition sometimes manifest itself, the patient even after the occurrance of pregnancy may go along for many weeks happily thinking that all is well and unconscious of the approaching distress that is soon to overtake her. Unlike the disturbances of eclampsia and renal fatigue the symptoms of this condition appear much earlier in the course of pregnancy, averaging five and eight-tenths months in the series of E. J. Stieglitz (2).

While the symptoms, both subjective and objective, usually point to a disturbance of the cardio-vascular renal systems combined, in a given case either kidney, cardiac or vascular distress may be, and often is, a predominating factor. In other words, while the triad is involved in the disease processes, distress of one may be more manifest. Let us consider first the manifestations of kidney disturbance. There is albuminuria, which, if one is acquainted with the history of the patient, may be known to have been present previous to pregnancy. However, the potential nephritic not infrequently has an apparently normal urine until pregnancy is superimposed. The 'pthalein excretion may be diminished; frequently it is found to be unaltered. Unless the appearance time and estimation is noted within fifteen minutes, I consider the test of little value in the early months. There may or may not be retention of N. P. N. and total nitrogen. In a series which I studied some years ago at Barnes Hospital, St. Louis, blood nitrogen was within normal limits.

Blood pressure rises early in these patients. It is important to know the pressure previous to pregnancy. The higher the pressure before pregnancy, the less danger of a high reading during gestation. If the pressure was much up before conception, sclerosis is usually present, if not in the radial, maybe in the femoral, the temporal or retinal vessels. The blood pressure may itself become dangerous,

though these patients can often carry very nigh systolic pressures without distress. I much more fear heart or kidney failure. The diastolic pressure I consider more important than the systolic. It illustrates the steady load against which the heart is compelled to work. I fear to see it more than 100. I can stand a fairly high systolic pressure, but if the diastolic rises much above 100, I am likely to get anxious. It is worth while to remember the nervous factor in these patients, especially if the patient has been told that the pressure is above normal. Not infrequently one will find that the reading is 10 to 25 points lower after a five or ten minutes talk with the patient. I usually take the reading after the other examinations have been made.

Symptoms of cardiac distress during pregnancy are of the gravest moment. Except in the presence of poorly compensated valvular disease, they appear at a later period of gestation than vascular and renal symptoms. However, if there is very much hypertrophy I have noted that the heart symptoms usually antedate the hypertensive and renal symptoms and also that they are not infrequently of an asthmatic nature even in the presence of apparently adequate compensation. I cannot explain this phenomenon. In those cases in which the diastolic blood pressure is high, there is the greatest danger of cardiac failure. And the danger is not passed with delivery. The failing heart must be watched many days post-partum. My most serious cases have been those of cardiac decompensation several days after delivery.

Cardio-vascular renal disease is not in the strict sense a curable affection. Once manifested, it ever remains a potential factor in the life of the patient, even though the body functions may be for ordinary purposes in a normal state. For this reason the management of these cases is divided into that during pregnancy and after pregnancy. Let us first consider the management during pregnancy. The proper direction of the pregnant woman thus complicated often taxes the judgment of the most able. What can we do for the woman thus affected? First of all, she should have early and adequate prenatal care. An effort should be made to lighten the load she carries. The diet should be sufficient and nutritous, but not abundant. The animal proteins should be well restricted. The proteins of milk and vegetables are better for these patients. One should remember, however, that great protein loss through the urine may require compensation, especially in the early months and in the presence of anemia. In the presence of edema the salt intake may require restriction. However, except for its inconvenience, edema may not be of ill omen, unless of cardiac origin. The presence of edema in nephritis is not fully understood. Some students consider it an effort of nature to protect the body cells. I seldom direct treatment toward the edema per se. As most of these patients are multiparae with homes and several children, the question of work and worry is quite a problem. Work must be lightened as much as economic circumstances will admit. Attention should be directed to secure adequate elimination of the body waste. The kidneys are kept active by copious draughts of water and the bowels by

laxatives if necessary, preferably the salines. As many of these patients are anemic, the state of the blood requires attention. Diet and the usual hematinics generally suffice, though if there is much blood loss at delivery, transfusion should not be delayed. One should not fear to treat the anemia because of hypertension. Except in the presence of profound anemia, I have noted no relation between the state of the blood and the blood pressure. For the hypertension not a great deal can be done. If very high, the nitrites may be helpful. Stieglitz (3) advocates the use of bismuth subnitrate in 10-grain doses three times daily for the reason of its slower absorption. I have found it helpful in some cases. This can only be explained on the basis of arteriolar spasm and suggest the possible presence of some pressor substance as mentioned earlier in this paper.

Should the patient be allowed to attempt to go through with gestation? Many of them cannot and should not. How shall we decide? The best answer is to consider the patient as a whole. How has she stood the strain of previous pregnancies? The older the patient, the more likely that she will go through. Those who have gone several years without pregnancy are less likely to endure to the end than those who have conceived more frequently. A high diastolic pressure should not be allowed to persist long. If the blood pressure is reasonable and the heart good even though there is abundant albumin, one can watch and wait. Also, in the presence of high systolic pressure, if there is not much evidence of kidney damage, watchful waiting may be practiced. One should not hesitate before the threat of cardiac decompensation. Very many of these patients require the premature induction of labor. If the patient does not respond to treatment soon, induction should be practiced. Never hesitate until irreparable degenerative changes have been advanced in the vital organs. The type of delivery should be as easy and short as conditions admit. These patients stand shock poorly and should be relieved of all trauma and strain possible.

Having guided the patient through pregnancy and labor, the physician is then confronted with the management of the case during the months and years to come. The problem of the disease processes which have involved the kidneys, the heart and the vascular system is not solved with the termination of pregnancy. Only the complication of pregnancy has been removed. During pregnancy the object was to limit the damage to the vital organs as much as possible. Following labor, effort is now to be directed toward assisting the reparative forces of nature to the end that a minimum of residual damage may result. If the physician is in general practice he will continue the care of the patient himself. If her accoucher limits his practice to obstetrics, then soon after labor she should be referred to her family physician, if he has not already been coöperating in the management.

Following labor these patients should be given rest for several weeks. It is absolutely imperative that the duties attendant on home and family be reduced to a minimum. The regimen of diet, rest and elimination should be followed as rigorously as during pregnancy. It will be many months before the urine is albumin free and the blood

pressure normal, if ever. In many patients the best that one can expect is to maintain the patient free from the inconvenience of symptoms. But even in these cases, provided there are no future pregnancies, the patient under proper guidance may live many years in moderate activity and comfort.

The hypertension and albuminuria are slowly amenable to treatment. As the restorative forces of nature resume activity, the blood pressure and albuminuria gradually diminish. Bismuth subnitrate should be continued for its effect on arterial spasm. The heart may require more attention now than during pregnancy. Rest is the mainstay of treatment if there are cardiac symptoms. Small doses of digitalis are frequently found helpful even in the absence of decompensation. In a case of marked cardiac hypertrophy and tachycardia without decompensation which grew rapidly worse following delivery, complete digitalization and many weeks in bed were necessary to save the patient's life.

Many of these patients show marked anemia after labor, even in those in whom the blood was in fair condition during pregnancy. Treatment of the anemia must receive primary consideration. The restorative forces of nature function poorly in the anemic patient.

What about future pregnancy? If the condition has been severe and improvement following labor is delayed, pregnancy should be interdicted for all time. If the case was not severe and after two years the urine is practically free from albumin, the blood pressure normal or nearly so and the heart not much enlarged, pregnancy may be permitted if the patient insists. The patient, however, should be fully informed as to her condition and acquainted with the possibilities of harm that pregnancy will entail. In those patients in whom the complications of pregnancy have been severe or in whom after one year there are still hypertension, cardiac-hypertrophy and albuminuria, it is my firm opinion that further pregnancy should be positively prohibited. If intelligent, the couple should receive adequate instruction in the methods of contraception. However, for the average couple, I have little faith in contraceptives. If the condition of the patient will admit, and usually it will, I favor surgical sterilization. It is positive and safe and in my experience is the method of choice for the average patient.

Pregnancy complicating cardio-vascular renal disease occurs more commonly in mothers who have already borne many children. Often they have had little prenatal care and have gone from pregnancy to pregnancy, each time getting a little worse, until in the third or beginning of the fourth decade we find them practically broken down in health and body, of no comfort to themselves and little to their families. In a few more years they pass from the scene. I cannot but feel that we as physicians owe a special duty to these mothers to preserve them for their parental duties. Much has been done during our generation toward prevention of the comunicable diseases, but oh! how little toward preventing the degenerative diseases incident to repeated pregnancies among the mothers of the land. It is not enough to save the woman from the eclamptic explosion and the accidents of

pregnancy and parturition and then have her die in the forties from nephritis and the like. Prenatal care means more than that. In truth its object is not only to save the mother from pregnancy itself, but also to preserve her vital organs so that she may be spared the degenerative processes incident to repeated pregnancy and may pass the meridian of life whole in mind and body.

SUMMARY

Cardio-vascular renal disease with superimposed pregnancy is a serious complication. The manifestations may be primarily cardiac, vascular or renal, though all three organs are usually involved. These patients require strict observation and treatment. Induction of premature labor should be practiced, if the response to treatment is not sure and prompt. One should aim to prevent permanent damage to the vital organs. In many cases future pregnancy should be interdicted.

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DISCUSSION

THE CHAIRMAN: Any discussion of Dr. Brewer's paper? Dr. Spikes.

DR. N. O. SPIKES, Durham: Gentlemen, I think the problem of cardio-vascular renal disease during and after pregnancy, so well presented by Dr. Brewer, should be as much of interest to the medical man as it is to the obstetrician. I think when one studies cardio-vascular renal disease in women who have had children, he should inquire into the history and he will certainly be impressed by the number or by the large percentage of cases which will tell him that they had considerable trouble during their pregnancy.

It seems to me that the prenatal care should not be directed especially toward the prevention of a convulsion before or during labor, but more toward getting the patient in as near normal condition after the termination of pregnancy as possible. I sometimes think that a convulsion is not so bad, after all, because there are so many patients who have convulsions during and before labor that become perfectly normal after the termination of the pregnancy.

It seems to me that the most important single factor to observe during pregnancy is the problem of the blood pressure. So many studies have been carried out on the blood chemistry, and of course they are all interesting, but it seems to me that the most important single factor that regards both the liability to a convulsion during labor, and the liability toward a permanent cardio-vascular renal disease after pregnancy, is the study of the blood pressure, and especially the diastolic blood pressure.

Now I think it is very difficult to be able to tell you by the degree of the diastolic blood pressure just when to terminate the labor, or to determine the pregnancy termination. It seems to me that probably

the most important factor there is its duration. I am sure that a good many of you can recite cases of quite high systolic and diastolic pressures which become perfectly normal after labor was terminated.

On the other hand, some of you can remember cases of a fairly high diastolic pressure which was not probably considered very serious, and yet which after pregnancy remained high. I wish to report a case which will probably bring out this point. A woman who had had three children, age 34; she had no history of any trouble during previous pregnancies. I saw her at six months. Her blood pressure was 112 over 78. After six and a half months, her blood pressure increased to 124 over 80. At seven months, her blood pressure was still high. At eight months, she began to have headaches and dizziness, and her blood pressure at that time was 140 over 96. At that time I advised her to have the pregnancy terminated, because she had been on liquid diet, on free purgation, and rest in bed. She refused, because she was feeling quite well. During the labor, or just before labor began, her blood pressure gradually rose to nearly 200 systolic and 120 diastolic. By the free and copious use of nerve sedatives, the patient went through labor without developing a convulsion. I thought that I had done for the patient a most remarkable thing. I saw the patient six months after the pregnancy was terminated; her blood pressure was 190 over 110; and I saw her recently, 18 months after the pregnancy had been terminated, and her blood pressure was still 196 over 110, and she had been treated for cardio-vascular renal disease.

I think that this one case is certainly enough to stimulate our thought, especially in the direction of terminating pregnancy at an early date.

I wish to report another case which was just the opposite. A young woman, 20 years of age, who had the same picture as the previous woman, except that at eight months her pregnancy was terminated, and within six months after the termination of the pregnancy her blood pressure had returned to normal, along with a normal kidney and urine action, and without any signs as regards her heart. (Applause.)

The Chairman: Is there any further discussion of Dr. Brewer's paper? Dr. Kinlaw.

Dr. W. B. Kinlaw, Rocky Mount: Mr. Chairman, the speaker just said that possibly the medical man might have something to say about the question of cardio-vascular renal disease in pregnancy.

All of those associated in trying to deal with diseases of the heart have no doubt been confronted with the question many times as to whether or not this patient that is pregnant, on account of her heart disease that she has, shall continue with pregnancy. It is quite an important question.

I think the important thing about it is to realize that, in the first place, the statistics and percentage of course are on your side if you say that she can continue. We must see the patient, and if we see her at three months, particularly a young woman, we must realize that

when she gets nine months pregnant her heart will also have grown so that it can take care of delivery.

I don't want to get into discussion of the renal side. I think, however, that the most important thing is to decide in your own mind, if possible, whether or not the kidney is at fault, or is it the heart at fault? Is the albumen due to cardiac failure, or is the high pressure in the older people (the case that presents hypertension with myocardial degeneration), with cardiac symptoms, the result of some chronic kidney disease? In the young people that I have seen so far, the majority of them have been lucky enough to go through pregnancy all right, especially during the first pregnancy. The girl that is pregnant for the first time is possibly going to have a rapid heart; she may have a loud systolic cardiac murmur, and, as the doctor stated just now, toxemias. All of the cases of an anemia associated with pregnancy reported last year by Dr. Smith and I, had hearts that sounded as if there was no chance in the world for them to go through with delivery. In the absence of a past cardiac history, even if some enlargement were present, we considered the murmurs due to the marked anemia. They improved under treatment and none of them had pregnancy interrupted. It takes a good heart muscle to make a loud murmur.

Until a few years ago, mitral regurgitation was classified as the commonest valve lesion. Cabot then reported some 1600 autopsies, on cases that had died with heart disease. He had the histories with the diagnosis and found mitral regurgitation in a very small percentage of the cases. Mitral stenosis was much more frequent and this is a serious condition, one to be watched with the greatest care—in the pregnant woman.

Diastolic murmurs are the important ones, and I have found out while working with Dr. Paul White of Boston, several years ago, that I had been missing the early faint diastolic murmurs of mitral stenosis. They are hard to hear, but heard best with the bell type of stethoscope applied lightly.

The young married woman that is pregnant and presents a pulse rate of 100 to 120 per minute that increases on slight exertion and possibly associated with "shortness of breath"—but will tell in her history that she played basketball at school and danced nights without noticeable heart symptoms, certainly is most likely not to have organic heart disease. The thyroid should be investigated, effort syndrome considered, and digitalis should not be given unless the signs of congestive failure are present, then when it is needed the patient should have enough to properly digitalize them.

This is a very interesting subject with many angles for discussion, because the treatment and prognosis depends a great deal upon the number of months the patient has to go before delivery. Her age and the number of children she has had and the type of kidney lesion (is it nephritis or nephrosis) and the nature and extent of cardiac damage all have to be considered most carefully. The subject has been most ably presented and I have enjoyed hearing this paper. My few remarks are not made with the thought of adding to what the essayist

has said, or in any way presenting an argument, but merely to help stimulate by discussion, a feeling of desire in all of us to make frequent, careful examinations of the pregnant woman and thereby help lower the death rate. I thank you. (Applause.)

AXIS TRACTION IN THE USE OF FORCEPS (PRESENTATION OF A NEW OBSTETRICAL FORCEPS)

Dr. W. Z. Bradford, Charlotte

The obstetrical forceps should be regarded as an instrument of precision. By its proper use not only may maternal morbidity and mortality be lowered, but fetal injury reduced to par, with those few accidents accompanying spontaneous delivery. Too often this instrument is considered as an awkward mechanical substitute for the mechanism of labor, to be employed as a last resort in those cases of obstructed labor when the child must be literally torn through the birth canal. The disastrous results inevitably following this approach to mechanical delivery account for the high incidence of fetal and maternal injury frequently reported with forceps operations.

Forceps should be employed physiologically. The nearer their use can be made to simulate the normal mechanism of labor with a minimum of trauma and effort in the delivery of a fetal head, the greater the margin of safety for both mother and child. The question of efficient and safe forceps is a matter of prime importance in the obstetrical field, for only then does "elective forceps" cease to be a criminal procedure. The developement of artificial methods of delivery per vaginum has steadily progressed in attempts to perfect a tecnique that would safely emulate natures mechanism and the tremenduous variety of instruments on the market today attest to the thought given this subject by many obstetricians.

The development or evolution of forceps from the days of the Chamberlains lies in the curves of the instruments, these being added one by one in an effort to simulate the process of nature. First, forceps with a cephalic curve were introduced to replace the destructive straight forceps, and while the original purpose of this curve was to obtain a firmer grip on the presenting part, at the same time fetal injury was diminished by the protective curve. Subsequently, forceps with a pelvic curve came to the fore, and by this advance injury to the maternal structures was supposedly diminished. Lastly, the principle of axis traction was devised to exert force in the direction of the pelvic canal, thus increasing the efficiency of the exerted force, minimizing wasted effort against the symphysis and resisting structures, and diminishing the possibility of fetal and maternal injury.

Axis traction has unfortunately grown to be regarded as implying a difficult and traumatic delivery, involving excessive force and accompanied by a high incidence of intracranial injury and maternal lacerations. This point of view is probably due to the de-

structive possibilities of the well-known Tarnier forceps, an instrument today generally regarded as secondary in efficiency to other methods of artificial delivery, namely, version and extraction or cesarean section.

High fatal injury frequently reported indicated forceps operations is due to either failure at securing an accurate cephalic application or unnecessary force from neglect of the axis traction principle. The former is generally regarded as essential before traction can be safely attempted, and the results of unequal stress and strain exerted upon the tentorium by mastoid-brow and other oblique applications has been repeatedly called to our attention by neurologists, to be clinically observed in the typical picture of a birth injury. Unfortunately, this fundamental principal of axis traction has been relegated to those heads high in the birth canal where the direction of descent is chiefly downward and backward. Axis traction should be employed in every forceps procedure at whatever level the fetal head may lie, and not confined to those few cases of high positions of the vertex. Only by recognition of this fact may the operative delivery be made physiological.

Wasted effort makes many a forceps procedure difficult and dangerous. Traction must be in the axis of the pelvic canal if a minimum of force is to be exerted, and in mid-pelvic positions of the head this is impossible with the ordinary pelvic curved instruments. Pulling against the symphysis accounts for hard forceps and destructive surgery, when often enough the descent would be prompt and easy following moderate traction in the axis of the birth canal. The Pagot Method of securing downward traction with the ordinary pelvic curved forceps is awkward, the amount of force exerted is excessive, and at its best the manoeuver remains a poor substitute for intelligent traction in the true axis of the pelvis.

Various methods of obtaining traction in the correct pelvic axis have been devised. Outstanding among these are the DeWees, the Jewett and the Good forceps, and the Bill attachment for the Bailey-Williamson forceps. While all these have their use, the intricacies and elaborate mechanism involved have unfortunately thwarted their universal adoption by the medical profession. However, axis-traction becomes a simple procedure, applicable to the most elemental of outlet forceps operations, when, by means of a reverse pelvic curve on the shanks of the instrument, the traction curve is simplified.

Piper employed this idea, which had been forgotten since the middle of the last century, in his after-coming head forceps, thus obtaining not only traction on a high head in the direction of the pelvic axis, but securing an accurate application without hindrance from the previously delivered fetal body. In presenting a forceps designed by Hawks and Dennen of the New York Polyclinic Medical School and Hospital, we offer a modification of the Simpson blade and Piper shank, which embodies in addition to other features a reverse pelvic curve, insuring axis traction.

The choice of forceps is dependent upon the location, size, position and shape of the fetal head, and type of pelvis, as well as the individual preference of the operator. While of these, the "man behind the gun" is the most important, granted an equal skill and training on the part of two operators, the best results of obstetrical surgery will be found in the hands of that man who employs all the refinements of technique and precision of detail at his command.

Given an accurate cephalic application primarily, there are definite indications for various forceps, the Bartons or the Kiellands being particularly applicable in transverse positions. For the small round head, unmoulded and elusive, the Elliott, or one of its modifications—the Bailey-Williamson, especially—for rotation of a posterior occiput in the first steps of the Scanzoni, the solid blades of Tucker and McLane, and for the long moulded heads the Simpson or the DeLee may be used most effectually.

The majority of forceps probably fall in the latter classification, of which the Hawks-Dennen is a modification. Several distinctive features are to be noted, the long blade insuring a grip well down over the zygoma and malar emminences, thus protecting the facial nerve and preventing slipping as well as avoiding cranial trauma at the parietal bosses. Pressure traumatism at these points is largely responsible for the production of the exostoses of the skull, so often seen after the employment of a short blade on a long moulded head. The beveled inner surface also serves to protect the infant's face. The length of the shank, with its upper portion in the same plane as the blade, gives a generous spring, thus further avoiding pressure traumatism. Traction is exerted by three fingers at the lock, and the handles even if tightly locked do not produce a vise-like grip on the fetal skull.

As previously stated, the reverse pelvic curve or traction curve insures traction parallel to the pelvic canal or axis traction at what ever level the fetal head may lie, thus diminishing the wasted effort involved in the ordinary forceps procedure. As less traction is required for delivery with this method the fetal and maternal injury is correspondingly diminished and the artificial delivery made to approach that of the physiological mechanism for which it was substituted.

We have tabulated 221 consecutive deliveries with the Hawks-Dennen forceps in the hands of 27 different operators of varying degrees of experience. In this series there has been no maternal mortality. One infant was lost, a case of extreme asphyxia recognized as such before the application was made, an incidence of 0.44%.

THE SAFETY OF THE LOW CERVICAL SECTION AS COMPARED TO THE CLASSICAL OPERATION

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I bring this subject to your attention for only one purpose, and that is in an effort to single out one means of lowering the all too high obstetric mortality that is now widespread in our land. Every man here doubtless knows, but rarely thinks of the fact, that these United States of ours, with the greatest medical profession on earth, has charged up against it the fact that we have next to the highest obstetric mortality of any civilized nation in the world. If this be true, and it seems to be, judging from public health statistics, it is a disgrace and a blot on our fraternity. If it is not a fact we should go to work to stamp out the false idea.

Following this line of thought we might refer to two additional means of lowering obstetric morbidity before proceeding to the main subject.

First, Toxemia of Pregnancy is a cause of much obstetric morbidity and mortality, and we believe it can be and think we have seen the severe form in a small way eliminated by education of the public through prenatal care and by the termination of pregnancy in all cases of toxemia, regardless of the duration of pregnancy, if the condition does not subside on absolute rest in bed, milk diet and elimination. (1).

Secondly, our maternal and fetal morbidity and mortality will be reduced by the elimination of the all too frequent interference in labor in an effort to shorten the process, especially when the cervix is not completely effaced and fully dilated and the head well molded and fully engaged in the true pelvis. (2)

As to the third point, Ceserean Section, I do not want it understood that I am advocating this method of delivery, except in those cases in which it is speficically and definitely indicated. I am, however, advocating, when abdominal delivery is advisable, the type of operation which from personal experience and observation of the works of others seems to be beyond the shadow of a doubt the safest proceedure for the patient, resulting in a definite lowering of maternal morbidity and especially mortality. After all, our type of treatment is selected for the good of the patient. Few surgeons are so situated as to personally operate a large number, so it is the result of our experience and of the work of the rank and file of obstetricians and surgeons that really interest us.

Ceserean Section as a means of delivery has had much difficulty in surviving, and rightly so, because the mortality has always been too high, and remains so today. There have been techniques advised and many abandoned. Those discarded have in a large ma-

jority of instances lost their favor on account of post-operative peritonitis and death.

The Lasko extra-peritoneal operation offered the best results, but the frequent accidental opening of the peritoneum lowered its advantages.

Kronig (3) of Freiburg, following Selheim, then suggested the operation through the lower uterine segment behind the bladder, and in 1919 Beck, in this country, published the technique of the two flap low cervical ceserean section. In the beginning such men as DeLee were against the innovation, both on theoretical and practical grounds, but for years now he as well as Hirst, Polak, Bailey and many others in America, and Kerr and Holland in England, are absolutely positive of the advantages and advocate that technique in almost every instance.

(4) The greatest weakness of the classical operation lies in the location and final closure of the uterine wound. The incision is made through the thick muscular wall of the fundus, which for a week or more is in constant contraction and relaxation, grinding the edges of the wound against each other with the action of the muscles, tending to separate them. This allows the depositing of infected lochia throughout the vulnerable upper abdomen as the uterus makes its normal excursions during the first part of involution. The wound may be securely closed with well coaptating sutures which must necessarily act as hemostatics, but this closure does not prevent bacteria from traveling along the sutures to the peritoneal cavity. (5) Bacteria enter the lower uterine segment in all cases thirty-six hours after delivery, and make of the uterine cavity a real incubator by the fifth day post partum.

(6) Rupture of the uterus is almost entirely absent except where the wound is made above the lower uterine segment, as in the classical operation. In a total of 75,000 low cervical ceserean sections there have been reported only 22 cases of rupture, whereas in all reports the ruptures following the classical operation are one to four per cent. This would give in 75,000 classical ceserean sections 750 to 3,000 ruptured uteri, with an average of three per cent, or 2,250 ruptures. This fact alone should convince the most skeptical of the safety of the low operation.

If we place the death rate in cases of rupture at three per cent the classical would have over 65 deaths to every one death in the low operation.

The tendency of the wound in the fundus to separate may leave only the peritoneum to protect the abdominal cavity.

Deaths a few hours after operation are usually due to hemorrhage or tearing open of the wound. Wolff reported 14 cases in which contraction burst the wound in spite of the type of suture material used.

In a large series Spaulding found three per cent ruptures and Holland four per cent.

(7) Greenhill examined sections from the scars of previous low ceserean sections in 37 cases finding no scar in six, minor scars in 5,

undoubted scarring but integrity unchanged in 21, marked thinning in 5, these giving the appearance that they would not withstand the strain of labor. If such were the case in the thin non-contractile lower uterine segment, what could we expect from the fundus?

(8) Harris and Brown cultured the uteri of 50 cases of ceserean section, found 22 cases infected after six hours in labor, 21 of these were febrile. All wounds healed poorly. The conclusions were that vaginal examination and ruptured membranes increased the likelihood of bacterial invasion; that the presence of fever indicates infection resulting in poor scar, but absence of temperature does not insure against it. Classical or conservative section is therefore not considered safe except at the time of election. The phrase, "Once a Ceserean always a Ceserean" came as a result of ruptured uteri.

(9) The low cervical operation has been forced into use in order to eliminate the dangers of the classical section. All of its advantages are derived either directly or indirectly from the incision through the thin non-contractile pelvic segment of the uterus. If there is spill during the operation it is cared for by the pelvic peritoneum which has developed an immunity through close contact with the vagina and cervix and is therefore most capable of handling infection. All spill and seapage irritate the peritoneum as shown by the presence of adhesions in eighty per cent of classicals and forty per cent low cervical operations. If there is leakage after operation it is outside the peritoneal cavity in cervical ceserean section, and an abscess may be emptied by incision in the enterior vaginal wall. Scott reports three such cases, which, occurring after the classical operation, would have meant certain death.

The lower segment is much less vascular and therefore insures against hemorrhage, shock and embolus. These patients do not have the distress of distension, nausea and vomiting and lack the signs of having had a serious operation. The low operation reduces the necessity of ceserean section in many instances by allowing a test of labor in contracted pelves where seventy-five per cent will progress satisfactorily via the natural route. Fertility is not reduced as in the classical section.

(10) Polak reported 2,200 ceserean sections by many operators throughout the country, giving three per cent mortality in patients not in labor; six per cent in patients who were in labor, and 14 per cent in those with ruptured membranes. Gordon and a committee investigating ceserean sections in Brooklyn hospitals reported 1,200 classical ceserean sections, mortality of 6 per cent, approximately 200 low cervical operations, a mortality of 4 per cent. Fifty-three per cent of the classical operations were in patients not in labor, or in labor less than six hours, without ruptured membranes, and therefore in the best surgical condition, while 66 per cent of the low cervical operations were in patients in labor more than six hours frequently with ruptured membranes and in poor surgical condition.

(11) Winter reports 3,554 low ceserean sections by 384 operators, mortality 3.7 per cent, while 862 classical extra peritoneal and Porro operations gave 6 per cent mortality.

Illustrative Case Reports: (1) No. 3697; a nurse, 31 years of age; pregnant for the first time; admitted complaining of dyspnea. She gave a history of decompensation while in training. A diagnosis of aortic stenosis with mitral regurgitation was made. The pelvis was of the Justo Minor type. A low cervical ceserean section was done at term under novocain plus gas at the time of extraction. Both baby and mother were discharged fifteen days later in good condition.

(2) No. 5587; a 37 year old primipara was brought in forty miles with a history of having been in labor three days. The true conjugate was 8 centimeters. The cervix thin and dilated 5 centimeters. We were unable to force the fetal head in the pelvis. The blood pressure 215 systolic, 100 diastolic. There had been several vaginal examinations at home through an unprepared, unshaven vulva. The patient was highly nervous and on point of convulsions. A low cervical ceserean section was done under novocain plus gas. The mother improved and was discharged with a healthy baby in the usual length of time.

(3) Patient 18 years of age; irregular pains for two days. True conjugate 8¾ centimeters. Large baby. Examined through unshaven, unprepared vulva at home. On admission castor oil and quinine given. Pains became frequent and forceful for twenty-four hours. Cervix effaced, but unable to force fetal head into pelvis. Low cervical ceserean section. Mother and eight pound baby discharged in good condition two weeks later.

(12) The technique (DeLee and Beck) consists briefly of—

1. Thorough preparation of lower abdomen. Catheter inserted in bladder.
2. Six inch midline incision down to symphisis.
3. A long lap sponge is tucked in a semi-circular way between the fundus and abdominal wall.
4. The line of firm attachment of peritoneum (junction of lower uterine segment and corpus uteri) is located by a transverse line. ("Gray Seam" DeLee). The peritoneum 4 centimeters below is picked up with toothless tissue forceps and nicked with scissors. Be careful to pick up only the peritoneum for it is between this membrane and the uterine fascia that we find the avascular area. This is the secret of eliminating difficulties, for to cut into and strip the fascia causes unlimited oozing of blood.
5. The peritoneum is opened transversely, then separated with the bladder by scissors and finger dissection down to the vaginal attachment. The upper flap is dissected to the point of firm attachment.
6. Insert delimiting sutures in the deepest four inches of the lower uterine segment. Open lower uterine segment with bandage scissors or tonsil knife.
7. Give 1 cc. ergot intramuscular. Pituitrin as soon as the baby is extracted.
8. Deliver baby and placenta as in any ceserean section.

9. Close uterine wound with No. 2-20 day chromic catgut, interrupted.

10. Close uterine fascia with a continuous suture.

11. The upper flap is now tacked down with No. 1-10 day chromic catgut, using two sutures and the lower flap brought up and sewed with a continuous suture of the same material. The small amount of blood in the vesico-uterine space is wiped out, the intestines are rarely seen. The abdomen is closed in the usual manner.

Beck has later advised the leaving of a three centimeter strip of peritoneum intact on the lower segment and we have followed his suggestion to advantage in some cases.

(13) The advantages are:

1. Eliminate the necessity of wide transverse incision in the peritoneum reaching almost to the broad ligament.

2. Prevents tearing the peritoneum at delivery.

3. Reduces the amount of trauma and cuts the dead space 50%.

To recaptitutate the low cervical ceserean section—

1. Reduces the mortality of operative delivery.

2. It reduces the necessity for ceserean section in many patients by allowing a test of labor.

3. It widens the indications for operative delivery to include the heretofore mismanaged and hopeless cases.

4. It reduces the danger of subsequent rupture from three per cent to almost nil.

5. It eliminates the post-operative shock and distress of abdominal delivery.

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THE CHAIRMAN: Is there discussion of Dr. Procter's paper? Dr. Johnson.

DR. GEORGE JOHNSON: I wish to thank Dr. Proctor for his paper; it was an excellent paper, and it was admirably presented.

Anybody who has been a student of DeLee will certainly agree with Dr. Proctor that this is the ideal operation. There is nothing that I would attempt to add to the paper, but there is one thing I would like to stress, which he has mentioned.

That in sewing up the uterus it is essential to use interrupted chromic catgut. The uterus is not a quiet incision; in other words, it does not stay still during convalescence. It contracts and relaxes and gradually becomes smaller in size. For this reason a continuous suture should not be used in the muscles.

I think we are all getting to believe more and more in local anaesthetic for these cases. In cases of hyperthyroidism complicating pregnancy and a cesarean is indicated avertin is probably the anaesthetic of choice.

I wish to say that I enjoyed Dr. Proctor's paper very much, and I agree with him in everything. (Applause.)

No further business appearing, adjourned.

SECTION ON EYE, EAR, NOSE AND THROAT

Dr. J. M. Lilly, *Chairman,* Fayetteville

Dr. V. K. Hart, *Secretary,* Charlotte

The Section on Eye, Ear, Nose, and Throat met in Lecture Room "C" of the Washington Duke Hotel, Durham, Wednesday, April 22, 1931, and was called to order by the Chairman, Dr. J. M. Lilly, of Fayetteville, at two-thirty p. m.

The Secretary of the Section, Dr. V. K. Hart, took the chair while Dr. Lilly read his Chairman's Adrress, entitled, "Inter-Relations."

CHAIRMAN'S ADDRESS

INTER-RELATIONS

J. M. Lilly, M.D., *Chairman,* Fayetteville

The laity, Relief Organizations, Health Departments, the Medical Profession in General and the Specialist:

At the present time, when so many agencies are at work for the physical development of the underprivileged child, it behooves us, as physicians, to give time and careful thought, in order to arrive at the best solution of the problems that have arisen. Besides giving our services, if needs be, without thought of profiting thereby, we must, in justice to ourselves and the public, insist on a more unified effort on the part of all the agencies concerned, to the end that the most good may be accomplished by the expenditure of the means available. It would seem reasonable to assume that no agency should solicit funds to pay for the treatment of physical defects, nor ask physicians to treat as charity any cases where the parents or other parties responsible are financially able to pay for such service. There is an all too widespread tendency on the part of the public to get something for nothing, or for the least possible cost, and the public is not altogether to blame. They say: "I pay taxes; why not take advantage of every service paid for by taxation?" or, "I pay to charitable organizations; why am I not entitled to their benefits?" Or in many cases ignorance or indifference has caused the neglect of physical defects in children until called to attention by a nurse or physician working under the auspices of a health department or charitable organization, and many of these are all too ready to assume that the agency discovering the defect should use its best efforts to have them corrected free of charge or for a nominal sum. This state of mind on the part of the public has already put most of the tonsil and adenoid work on a charity basis, and the physician who formerly derived at least a considerable portion of his living from this work, now has to do it for $12.50 each, including general anesthetic and one night in hospital, or they will

either wait for a clinic, or go to someone else who will do it for this amount. This has become so universal that doubtless the majority of the laity now think $12.50 an adequate fee for such service. Again there is a widespread impression that the various organizations doing this work are paying the physicians and hospitals, in addition to what they themselves pay. A few years ago the State Health Department began the holding of clinics for the removal of tonsils and adenoids, and many thousands of these operations have been done, many for children too poor to have it done otherwise, but some for children whose parents carried them to the clinics in limousines. Without harsh criticism, might we not conclude that if a local committee of charitable and fair-minded citizens, after investigation, had passed on the cases and admitted none able to pay, many more who were unable to pay could have been reached and cared for.

I do not wish to be misunderstood. I believe in seeing to it that every child gets everything possible done for it that is necessary for its best development, and in common with you all, am glad to give whatever of professional skill I may possess, without financial remuneration, if needs be, but I do have a deep conviction that there must be more unification of effort in selecting the cases to which charity is to be dispensed.

Many counties now have well-organized and efficient health departments, doing excellent work, but aside from placarding and quarantining, looking after the cause of and preventing the spread of epidemics, making meat and milk inspections and water analyses and supervising sewerage disposal, they have no funds at their disposal, consequently they cannot have tonsils and adenoids removed, glasses fitted, orthopedic work done, etc., except by appealing to us to do it without charge or by getting funds from kindly disposed individuals or agencies to pay cost for such work. Should we not expect, in return for this service, that our interest be protected by admitting no one able to pay? Is there any way to do this except through local organizations in each community, whose duty it should be to investigate and pass each case on its merits? Is there any other organization as well prepared to do this as the local health departments in conjunction with the heads of the schools? When free service is offered should it not be made plain that it is offered only to those who are unable to pay?

The public in general is entitled to know that they are being protected against infectious and contagious diseases, that they have a pure water, milk and meat supply, and they should also realize that it is as much their duty to help pay cost for the care of underprivileged children with physical handicaps as it is the duty of the medical profession to render free service, and that individuals are not entitled to free service in any of these items of personal treatment unless their financial condition is such that they see no probability of being able now or in the future to pay for it. This fact should be impressed on the public by every representative of any relief or welfare or health organization as they come in contact with them.

In many communities relief organizations have little or no coordination of effort, two or three organizations visiting the same homes, thus incurring unnecessary expense, and each organization must have a paid head and workers and maintain an office, necessitating a heavy overhead expense. Should not there be a clearing house or a common office for all these organizations, reduce overhead, and thus spend a larger part of the contributed funds for actual relief? The health departments have the best of facilities for supervising all this work, and by doing it through these departments much is to be saved. The public is tiring of too frequent drives, and the time is probably almost ripe for the application of the community chest plan to all such charities, the funds so raised to be dispensed through the health and welfare departments, aided by any other organizations who wish to cooperate.

In discussing the relation that should exist between the general practitioner and the specialist in medicine and surgery, I realize that fixed and inflexible rules cannot be laid down, but rather general principles outlined, which, if followed, would promote harmony between the family physician and specialist, and indirectly be of benefit to those who consult us for relief from real or imaginary physical ailments. It has always been my desire to fully coöperate with the general practitioner with whom I have occasion to consult, and the suggestions that I shall make briefly constitute my ideal of the relationship under discussion. I think that if we strive to carry out these ideals it will aid both in the promotion of peace and good will in our profession and in the better ministration to the ills from which our patients suffer. In this discussion it will be necessary to consider the patient as the connecting link between the general physician and the specialist, and all the time remember that the sole excuse for our professional existence is our ability to be of service to him.

A general practitioner of medicine is a man who has taken a comprehensive course of intensive training in medicine and surgery, not only textbook work but clinical as well, and has equipped himself to take histories, make physical and laboratory examinations, diagnose pathological conditions, and prescribe remedies as he sees fit. To him should belong first-hand every medical and surgical case, and only with his consent and coöperation should the patient consult a specialist.

A specialist in medicine is one who, like the general practitioner, has taken a course in general medicine and surgery, and who knows how to take and weigh histories, make physical examinations and diagnose and treat pathological conditions, but who, in addition, has taken considerable special training under well qualified specialists. There are three ways to become a specialist, any one of which satisfies equally well the demands of the public. The first, and least desirable, method is to decide what specialty you wish to follow, and then go to some one of the several graduate schools. The second, and a much better way, is to get an association with some doctor conductng a clinic where ample material is available, and day after day for months work under the supervision of this doctor, putting in many hours of careful study while not on duty in the clinic. The third and best method is to get

an appointment in an institution which is devoted entirely to the specialty you wish to follow, or has a well organized department for it, and serve as resident for one, two or three years. Whether he chooses first, second or third of these methods, he will concentrate his energies and attention to the treatment of some special class of cases or some special part of the body. His sphere should be to take the case after it has been seen by the family physician, and with due regard for his findings make diligent search for any defect in his special line, and, with the approval of the physician referring the case, prescribe for and treat it accordingly, or refer it back to that physician with any suggestions he has to make.

When the general practitioner is called, if the case is one in which a satisfactory diagnosis can be made, and one in which hospital treatment or major surgery is not necessary, the case belongs entirely to his sphere and the specialist has no claim to it, unless, for the satisfaction of the physician in charge or the family or patient himself, a consultation with a specialist is desired. However, if the diagnosis is in doubt and the physician in charge does not feel sure as to the best course to pursue, he should advise accordingly and suggest that some one or more specialists, in whose line the case would likely belong, be consulted. He should then either accompany the fatient and consult with the specialist, or write him the result of his examination and treatment up to date.

It would seem inadvisable for the general physician to state with any degree of certainty to the patient a diagnosis about which he is in doubt, and those of us who do special work would be very thankful if the physicians who refer us work would not promise that we will, without doubt, cure their ills, for often times our examinations reveal the fact that we can add nothing to his knowledge and treatment of the case.

Every specialist in medicine and surgery should consider himself as a colleague of the general practitioner and should treat his cases as nearly as possible in coöperation with him. After going over the history and examining the patient, if a reasonably certain diagnosis can be reached of some trouble in his particular line, let him advise the physician in charge if he be present, and, if not, the patient himself. Then, if the treatment is something that can be carried out at home in the hands of the physician in charge, as well as in the specialist's office or hospital, he should advise that this be done. On the other hand, if local or surgical treatment is indicated which cannot well be done except by his special equipment and training, then let him proceed, with the consent of the patient and approval of the physician in charge. Should the specialist not have an opportunity to see the physician in charge he should write him his findings and suggestions, or treatment actually given. In no case should he criticise the handling of the case up to the time he gets it, for he does not know the handicaps the physician in charge may have worked under, nor can he rely absolutely on the statements of the patient in regard to the previous diagnosis and treatment.

The general practitioner may prepare himself ever so well, and yet the field of medicine and surgery is too large for any one to master the details of treatment and management of all cases, and he will often find it for the patient's good and his own satisfaction to call to his assistance someone who, though less skilled than he in general medicine, is more familiar with the details of certain conditions.

The specialist should feel his dependence on the general practitioner, recognize his superiority in the general field, and exert every effort to do his part well and merit the confidence of his friend the family physician, from whom his cases should be referred.

The foregoing remarks are based on all work being referred by the family physician, which is the ideal way to maintain the best relationship between general practitioner and specialist, but the specialist of today is getting a great many cases first hand who have not consulted the family physician. Certainly he will not decline to treat these cases, but should proceed to do so and report his findings and treatment to the family physician. In those cases where the local symptoms point to systemic disturbance alone, and no treatment other than general treatment is indicated, the case should be referred to a general man. For instance, if the oculist finds an albuminuric retinitis, high blood pressure with albumin and casts in the urine, it is far better that he tell the patient that his eye symptoms are a local manifestation of a kidney disease, and comes entirely in the line of the internist or general practitioner. On the other hand, if he finds diseased tonsils or suppurating accessory sinuses, it is entirely in his sphere to proceed with the proper measures to remove these foci of infection.

I have only expressed a few general thoughts, and I think if they are carefully considered in the spirit in which they are written, they will be of some help in smoothing out any possible misunderstanding between the various groups under discussion.

PRACTICAL VALUE OF PERIMETRY IN INTRACRANIAL CONDITIONS. CASE REPORTS

Frank C. Smith, A.B., M.D., and
Margaret Monroe Smith, Ph.D.

My purpose is to present some practical facts regarding perimetry and illustrate them with clinical cases taken from the records of Dr. Henry L. Sloan and myself.

[1]"In no nerve territory is functional testing elaborated to such an extent as in connection with the optic nerve," yet its value is generally neglected and particularly so in early cases. To present some practical points in intracranial conditions we have selected different types of lesions at varying levels. The histories are very brief, and only positive findings of the examinations will be given. Several growths in the vicinity of the chiasm are shown, since in disturbance of the function of the fibers here the perimeter shows itself to be a diagnostic measure "par excellence" and gives the ophthalmologist an opportunity to put many early cases in the hands of competent neuro-surgeons.

The visual fields shown were taken on the Ferrce-Rand perimeter which furnishes standard conditions and simplifies mapping both the peripheral and central fields. It has been used to the exclusion of other methods, except at the bedside, since August, 1928.

Traquair arranges the affections of the conduction apparatus into four groups—

I. Toxic and inflammatory conditions.
II. Pressure.
III. Vascular disease.
IV. Traumatism.

Whatever the cause of interference with the visual path, there is a definite tendency to recover when the cause is removed. Recovery from severe retrobulbar neuritis is commonly seen, and the rapid restoration of vision following the removal of pressure of months or even years on the chiasm is remarkable. However, we should remember that the longer the loss of vision the less likely is ultimate restitution.

Interpretation of the field changes depends, of course, on a knowledge of the anatomical arrangement of the fibers. At the chiasm alone can the exact level of disturbed function be determined without additional information. At other levels the field defects not infrequently give the first definite evidence that there is an organic lesion and behind the chiasm they tell the side involved, which, together with associated signs and symptoms, often indicates the accurate location.

Continued pressure on the optic chiasm is characterized by two ocular symptoms—a progressive simple atrophy of the nerve, and a bitemporal hemianopia or a tendency in this direction. The presence of bitemporal hemianopia immediately points to a lesion in the vicinity of the optic chiasm, as this is the only position along the optical pathway where a single lesion can produce such a field defect. The pressure on the fibers from the nasal retina may be from above, below, in front or behind, with the position often indicated by the field change, when it is detected in its beginning. As an enlargement of the pituitary, lying below the chiasm, is the common cause the inferior nasal fibers are frequently involved first with the field defect beginning in the upper temporal quadrant. In this area a slight peripheral indentation or "temporal slant" is first detected with an object of medium sensitiveness, while the periphery remains normal for larger objects. With continued pressure of the growth upward the defect extends downward until the temporal field is obliterated. The peripheral depression progresses downward steep and ultimately perpendicular in the 90 degree meridian, but arches around the blind spot out and upward to the periphery. As progress continues a temporal island is cut off, which can be detected with a large object for some time before it disappears. At times a scotoma below ascends to meet the downward advancing defect. After the temporal field is obliterated the nasal field is lost, beginning above and extending downward in a like manner. A

similar but reverse type of field change beginning in the lower temporal quadrant may be looked for in supra-cellar growths.

While the above description is the classical change, it must be remembered that various atypical forms are produced. Symmetrical changes of the same degree are the exception rather than the rule; in fact the eye first involved may go even to complete blindness before there is a characteristic change in its fellow. Bilateral field changes, however, are not essential in many diagnoses, since any unexplained unilateral temporal cut demands elimination of the chiasmal area. There may be disordered function of the pituitary, enlargement of the sella, erosion of the clinoids, other deformation of bone or a fleck of calcium to indicate some growth or disease. It should be stressed that if early changes are to be detected by the X-ray, stereoscopic films of clearest detail taken in both right and left positions must be carefully interpreted.

The visual failure in the majority of cases is progressive but slow, extending over months or years. At first a slight blur is noticed, probably in only one eye, which gradually becomes more marked, and is later noticed in the other eye. This may be for a long period the only complaint of the patient, and may have reduced his vision to 20/200 or less with characteristic field changes, and yet the appearance of the optic discs passed as normal by competent ophthalmologists. In other words, the pallor (sometimes waxy in appearance) of the discs, which have lost no substance, may not be definite until long after other characteristic signs are present. Later, there is a definite simple atrophy of the nerve. It is indeed remarkable that the eyes with vision practically destroyed and showing pallor will in many instances regain quickly their function, sometimes reaching 20/20 after a duration as long as two years—a physiological nerve block, not an atrophy. Thorough perimetric investigations of progressive diminution of vision without determined ocular pathology will disclose more tumors in the area of the chiasm.

Neither the visual nor the field changes are always slow; they frequently occur rapidly. When changes no longer are noticed this does not necessarily mean that the growth of the lesion has ceased, as it may have passed between the legs of the chiasm and extending upward produce death without further change in either.

Affections of the optic tracts usually produce homonymous hemianopia, which has the general features of bitemporal hemianopia in contrast to supra geniculate lesions where defects are similar in extent and intensity. Sudden and complete bilateral hemianopia eliminates consideration of a tract defect.

Interference with the function of the temporal lobe radiations may cause homonymous sector defects of various dimensions. Cushing says, [3]"hence it is fair to conclude that perimetry gives us information of paramount diagnostic value, particularly in the early recognition of temporal lobe tumors, the partial defects short of hemianopia being especially characteristic of involvement of the optic radiations in this region." [2]"It is a point of considerable im-

portance with regard to the fields that they are not strictly congruous, for the field defect on the side of the lesion is very apt to be in advance of that of the other eye, and the difference may be very marked."

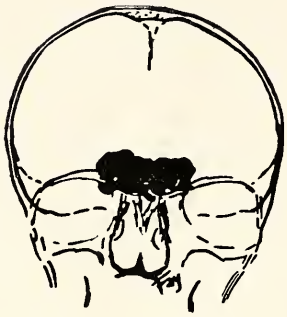
Vascular lesions produce sudden symptoms, and being usually above the geniculate body the field changes are homonymous with defects similar in intensity and extent, but at times one is more advanced than the other, which is shown as fields are taken while the hemorrhage or edema is clearing. To localize the lesion it is necessary to study [4]"the vascular supply of the various portions of the visual pathways, and the associated cerebral symptoms following occlusion of the various large vessels concerned. The optic tract is supplied by the anterior choroidal and posterior communicating arteries; the optic radiation by the anterior choroidal, sylvian and posterior cerebral arteries, and the cortical centers by the posterior cerebral artery. Complete occlusion of the posterior cerebral artery gives rise to the thalamic syndrome of hemianesthesia, hemiakinesia, painful phenomena, disturbances of co-ordination and athetosic movements besides a more or less extensive hemianopia, and in the case of occlusion of the left posterior cerebral artery also to sensory aphasia and alexia. The thalamic symptoms may be minimal or absent in partial occlusion. Closure of the sylvian artery leads to death, and only lesions of the subcortical branches are of interest here as causing hemianopia. If the artery is involved before the common trunk of the ascending arteries is given off, hemiplegia and sensory disturbances will result, in addition to hemianopia sparing the macular area. A left-sided lesion of this type also causes motor aphasia. Occlusion beyond this point involves the posterior superficial branches of the sylvian artery, and, if left-sided, produces a motor aphasia and motor apraxia as well as hemianopia. If right-sided, only the hemianopia will be noted. Lesions of the anterior choroidal artery involve the posterior part of the internal capsule and may produce hemiplegia or hemianesthesia as well as hemianopia, so that it can only be distinguished from a sylvian lesion if left-sided, as aphasia is absent."

The complaints recorded in the following cases varied and were not marked until the lesion was advanced. Headache was not a prominent symptom, nausea was present in three cases, and choked disc was a late manifestation.

The 1 degree and the 0.17 degree white test objects gave almost as much practical information as did the colored objects. With the instrument used it is very simple to change the background from black to light gray and thus produce a very sensitive test with the 0.17 degree white stimulus. For research and where a highly trained technician is employed beautiful fields can be mapped embodying the finer points of perimetry, but for the average ophthalmologist the test must be less time consuming, require less technical knowledge and yet give practical information if he is to take visual fields when they are indicated.

Case No. 1. Meningioma Arising from the Olfactory Groove.

Mrs. G. C. McM.; white; age 39; 10-24-28 complained of severe headaches over the vertex of several months duration, with nausea on several occasions. Print blurred at intervals, but the use of her eyes had no effect on her headaches. She was nervous and restless most of the time, which was becoming worse. Hot and cold sensations flashed over her body, and she had irregular shooting pains, which varied from one location to another. Her weight had definitely increased in the past few months. An oophorectomy was done one year before.



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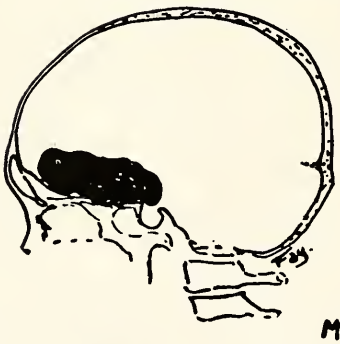


McManus.

Case No. 1. Meningioma.

Her vision was 20/15 in each eye, ocular movements full, pupils active, the fundi negative in every respect and the fields normal to a large object. A small hyperopic error was properly corrected. Nose, throat and sinuses were negative.

Four and one-half months later, when I saw her with Dr. E. J. Wannamaker, she had bilateral choking of the discs, the right being the more advanced. He found that she had been unable to smell

for two years, which was the most important point in her history. This was the only localizing sign or symptom except her gain in weight, which suggested pituitary involvement. Due to her inability to keep her eye still we could only determine that there was no large defect in the visual field.

Dr. T. S. Fay reported: "Half way to the depth of the pituitary fossa, a dark red tumor mass the size of a duck egg was disclosed in the midline, entirely concealed by the frontal lobes and lying between the falx, and extending backward for an unknown distance. The tumor was firmly adherent to the base of the skull and grew around the carotid artery on the right and also around the optic nerve on the right."

Pathological report: Fibroblastoma.

Comment. Failure to elicit the loss of smell prevented the suspicion of an intracranial growth and a thorough perimetric investigation when first examined. The history of headaches increasing in severity should have been sufficient.

Along the area of the olfactory groove meningioma frequently arise and in their growth may involve either optic nerve. One nerve is likely to be involved first then the other or the chiasm may be interfered with directly by a backward extension of the tumor. On the other hand one nerve may be completely destroyed without involvement of the other.

Since there were no gross field changes this case demonstrates that the fibers often undergo considerable pressure before there is marked involvement of the visual field. (A sensitive test object would probably have shown a definite cut when she was first examined.) It illustrates also that a growth may involve a nerve to a certain extent then extending upward between the legs of the chiasm produce death without further involvement.

Case No. 2. Supra-Sellar Cyst (calcified).

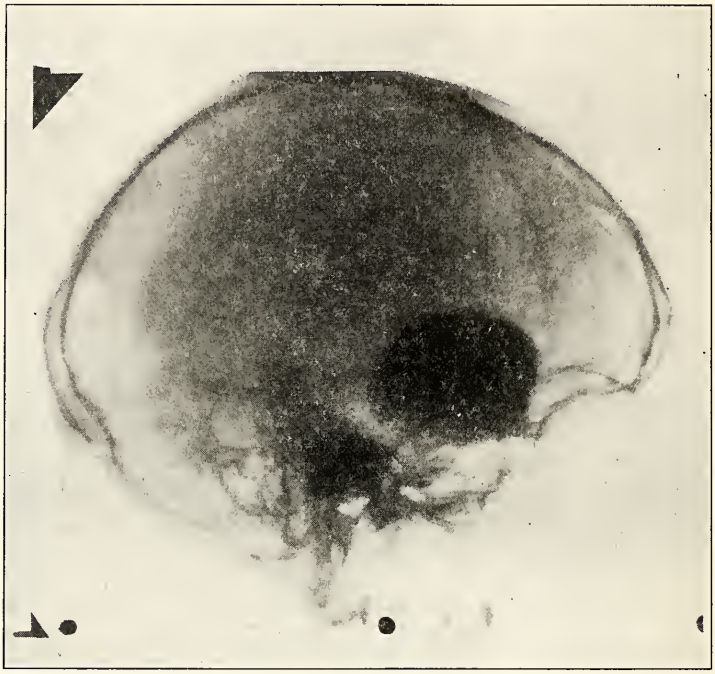
Mr. A. A. H.; white; age 50; came in 8-6-28 complaining he had been blind for over a year. In 1916 he noticed the right eye was failing. This loss of vision progressed and later the left eye began to fail. He consulted several specialists, who treated him without success. His general health was always good and he did not complain of headaches.

The right eye was blind but light perception remained in nasal half of the left field.

Comment. Here was a man who had steadily become blind for 12 years, when a careful perimetric examination would have probably indicated his condition at the time he first noticed his vision blurring, certainly rough perimetry or X-ray would have put him in the hands of a neuro-surgeon years before, while the condition was operable. At the time of operation the cyst involved vital structures to such an extent that removal caused his death.

The bilateral simple optic atrophy, with light perception only in the nasal field of the left eye, indicated a lesion in the area of the chiasm, which the X-ray confirmed.

The lack of symptoms other than failing vision is striking. It illustrates (1) how long this may be the only symptom complained



Case No. 2. Supra-Sellar Cyst. (Calcified.)

of, (2) the gradual progressive loss of one eye first then the other, and (3) that the responsibility of determining the cause frequently rests upon the ophthalmologist.

Case No. 3. Growth in the Pituitary Fossa.

Dr. T. W. C.; white; age 55; when examined 11-18-29 stated that the vision of his left eye had been blurred since July. He had been told this was due to an optic neuritis.

The vision was 20/24 minus 1 in each eye, and 20/15 in each eye with his correction. There was no change in the fundi unless the left disc was slightly more distinctly outlined than the right. The right visual field was normal, but the left (with a 0.17 degree test object) showed a marked defect in the upper temporal quadrant. This combined with a definite increase in the size of the sella and apparent thinning of the clinoids made the diagnosis.

On 12-17-29 he felt his vision was more blurred (left 20/30 plus 2) and he had an occasional pain in the left temple. He was advised to consult Dr. Charles Frazier, who felt that he had an adenoma of the pituitary gland and advised that he be given X-ray therapy, and his fields checked regularly.

Comment. Following the first X-ray exposure there was a decided improvement in the field, which has continued with some increase in the defect between treatments. X-ray therapy does at times retard the growth of an adenoma, but is usually only a temporary measure.

The indication here for the visual field was the complaint of blurred vision by an intelligent observer, even though he had 20/15 vision and the fundi were normal. With this visual acuity there is with the 0.17 degree test object a typical early temporal defect, which splits the macula area.

Changes in the field from time to time give the most accurate means of following the progress in this case, just as it is most useful to check the result after operation or to detect the first sign of recurrence.

Case No. 4. Endothelioma Arising from the Sella Turcica.

Mrs. T. W. C.; age 33; white; Hickory, N. C.; April 23, 1930. Referred: Dr. Dandy. Chief complaint: Continuous styes for over three months.

Glasses were changed six weeks ago, but she has trouble seeing when walking, and some headache after reading. No other eye complaint.

Vision without glasses, R. 20/200, L. 20/200. With glasses, R. 20/200, L. 20/40.

Stye on the lower left lid and evidences of two other recent ones on the upper lid. Xeroform ointment 25% to be applied in each eye t. i. d. Refraction advised.

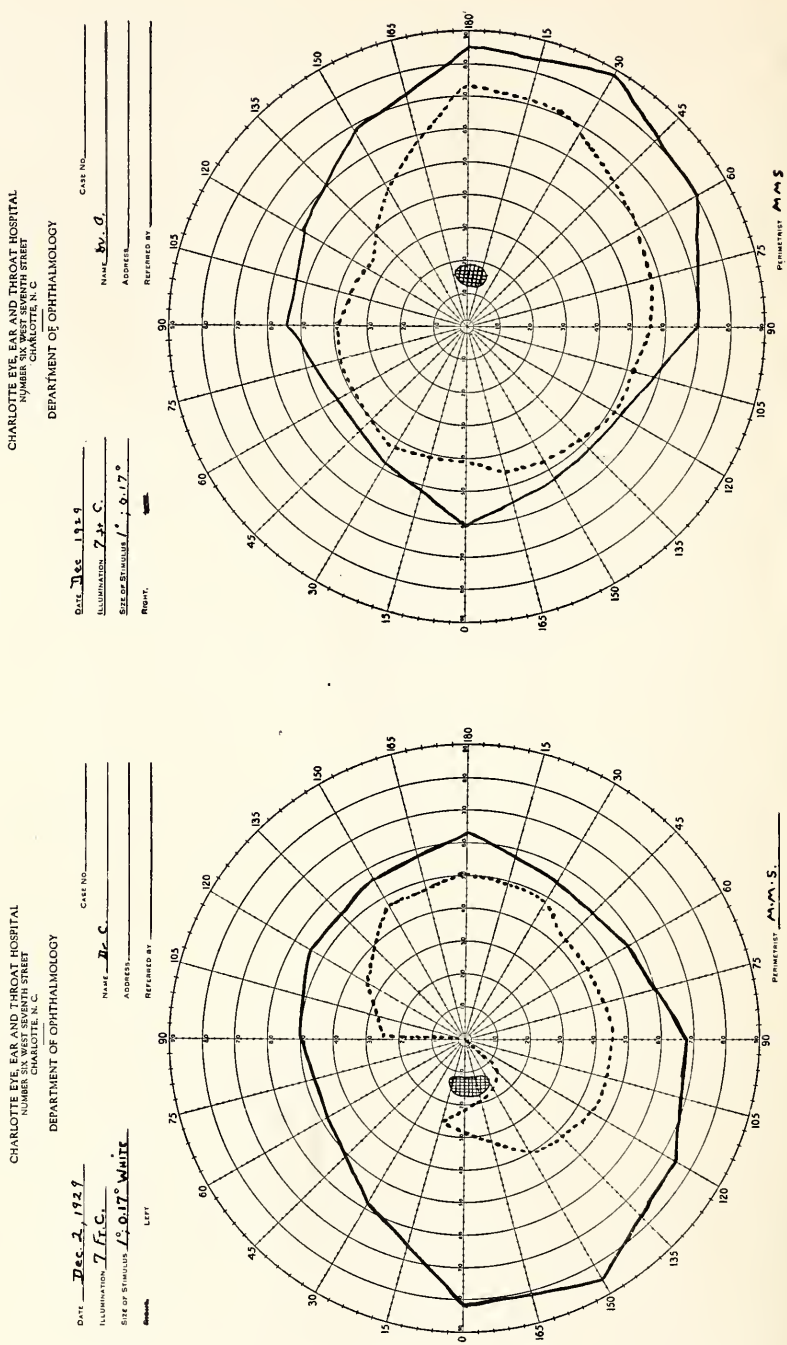
April 25. Under cycloplegic: R. plus 1.00x110 20/200, L. minus .50 c plus 2.00x60 20/20.

Patient sure she could see out of the right eye four years ago. When refracted a little over a year ago and again six weeks ago she was told she could not be made to see with this eye.

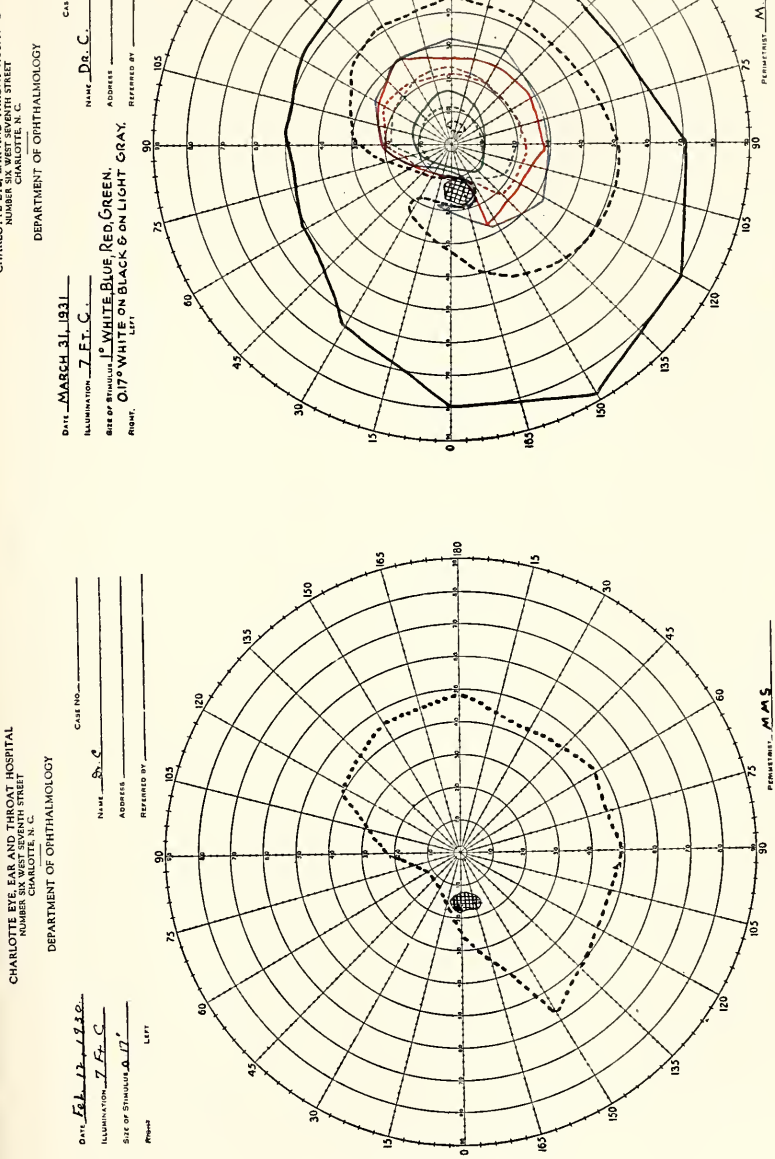
Fundi: The right disc is distinct and shows a general pallor when compared with the left. There is no loss of substance. The left is merely more distinct in outline than the normal, but would easily pass as normal if both were the same. Otherwise the fundi are normal.

May 3, 1930, Wasserman and Cline tests were negative.

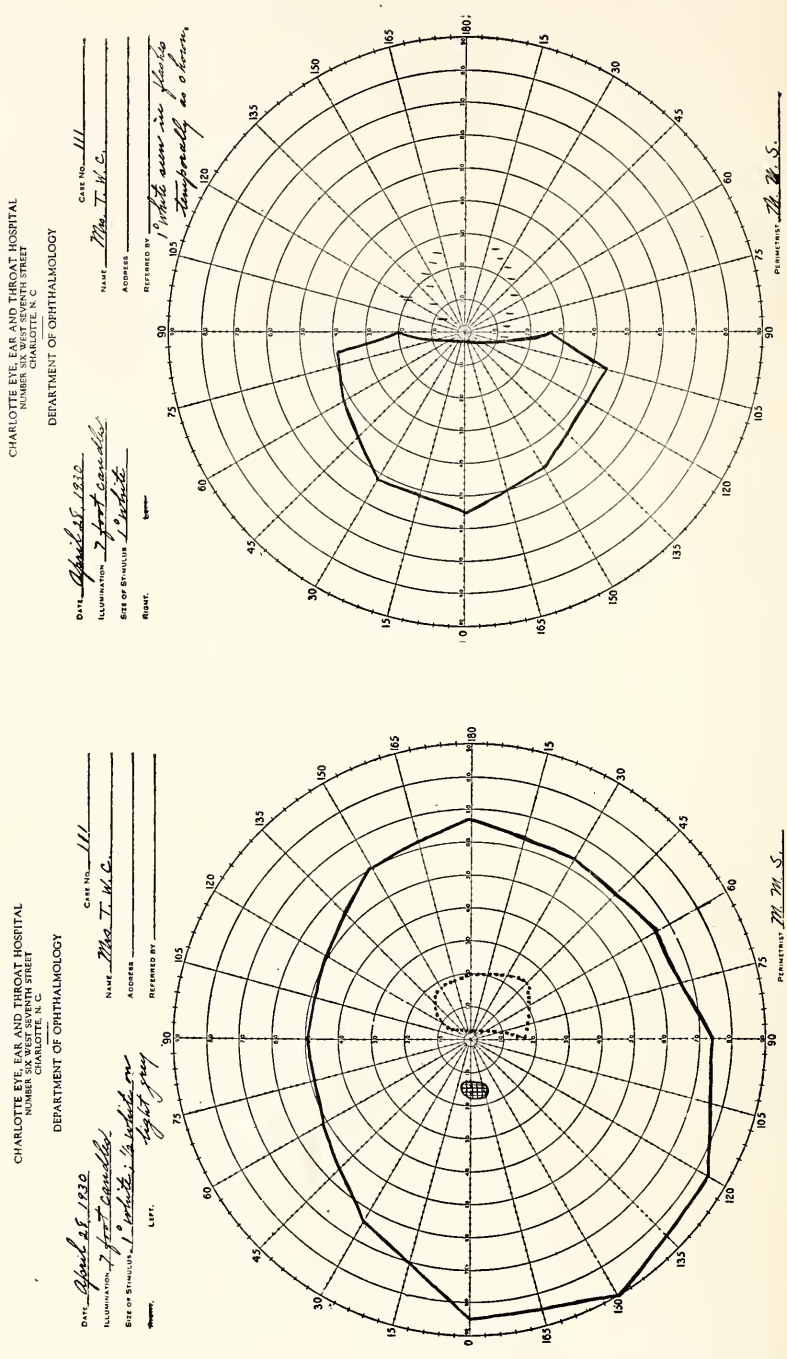
April 28, 1930. Post cycloplegic: R. plus 1.00x110 20/200. L. minus .50 c plus 2.00x70 20/20.



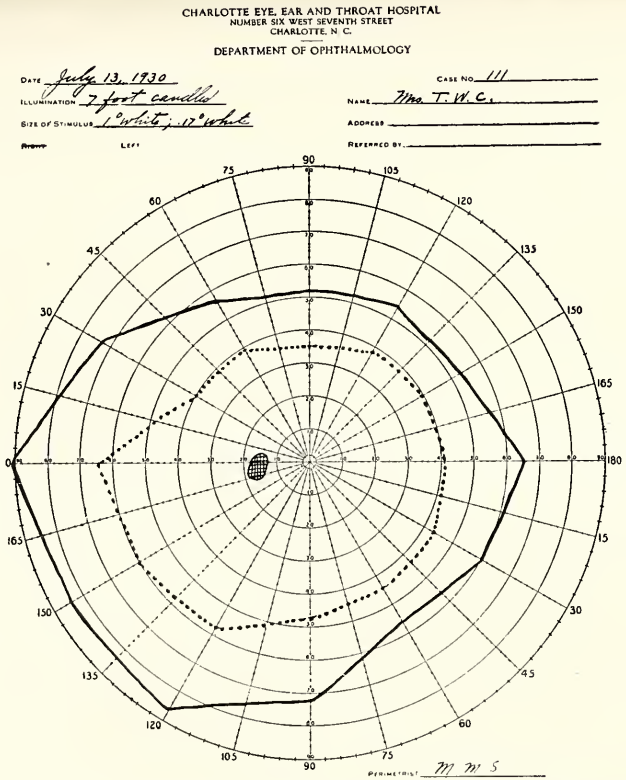
Case No. 3. Growth in the Pituitary Fossa.

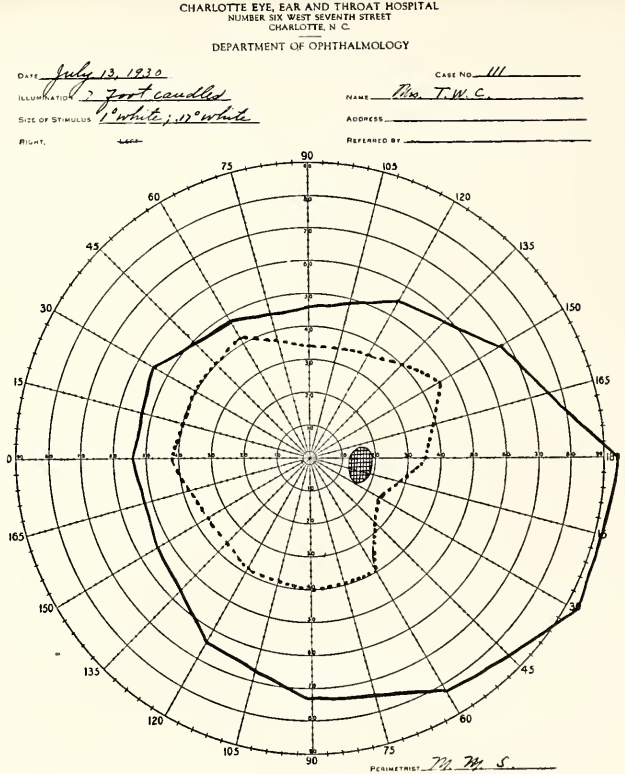


Case No. 3. Left Eye. Fields Taken 2-12-30 and 3-31-31.



Case No. 4. Endothelioma Arising from the Sella Turcica Vision with Glasses R. 20/200: L. 20/20.





Case No. 4. Two Months After Endothelioma Was Removed. Vision with Glasses R. 20/20: L. 20/20.

Fields: Advanced temporal hemianopia, R. More recent temporal hemianopia, L.

X-ray: Sella, both right and left stereo-plates show considerable erosion of the anterior clinoid on the left. The posterior clinoids are slightly eroded and displaced slightly downward and backward from the normal position. This is suggestive of a pituitary lesion.

5-15-30. "She had a dural endothelioma arising from the internal wall of the sella turcica; this came out intact and she should have complete and permanent recovery." (Dr. Dandy.)

Comment: Perimetry was indicated because of the amblyopic right eye, and it alone quickly gave the diagnosis. The patient immediately consulted Dr. Dandy, who removed an endothelioma arising from the sella.

Two months later the field in the left eye was normal, and the right nearly so, with vision having returned from 20/200 to 20/30 plus 3 in the right.

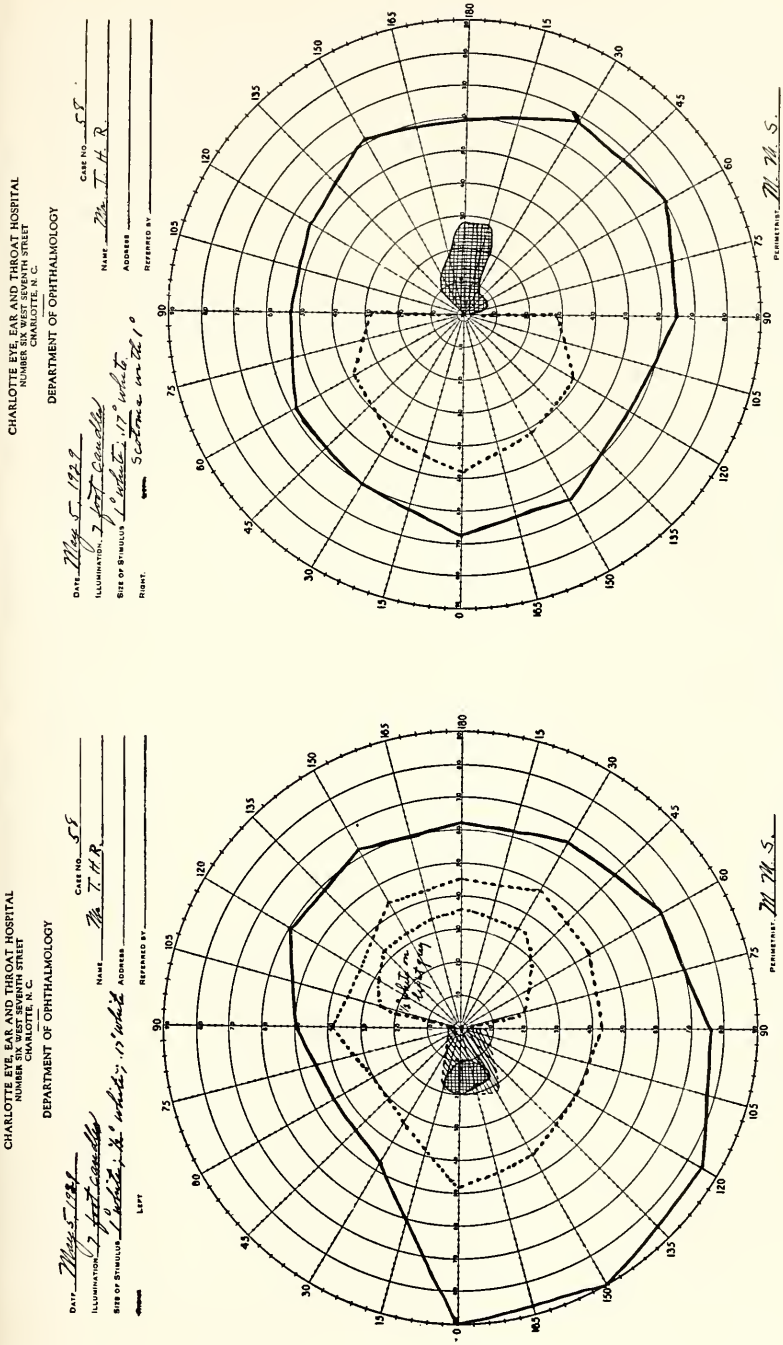
The marked difference in deterioration in fields and vision is again shown as is the value of the 0.17 degree test object. She is now relieved of her nervousness and feels better than she has for several years.

Case No. 5. Cyst of the Pituitary Gland.

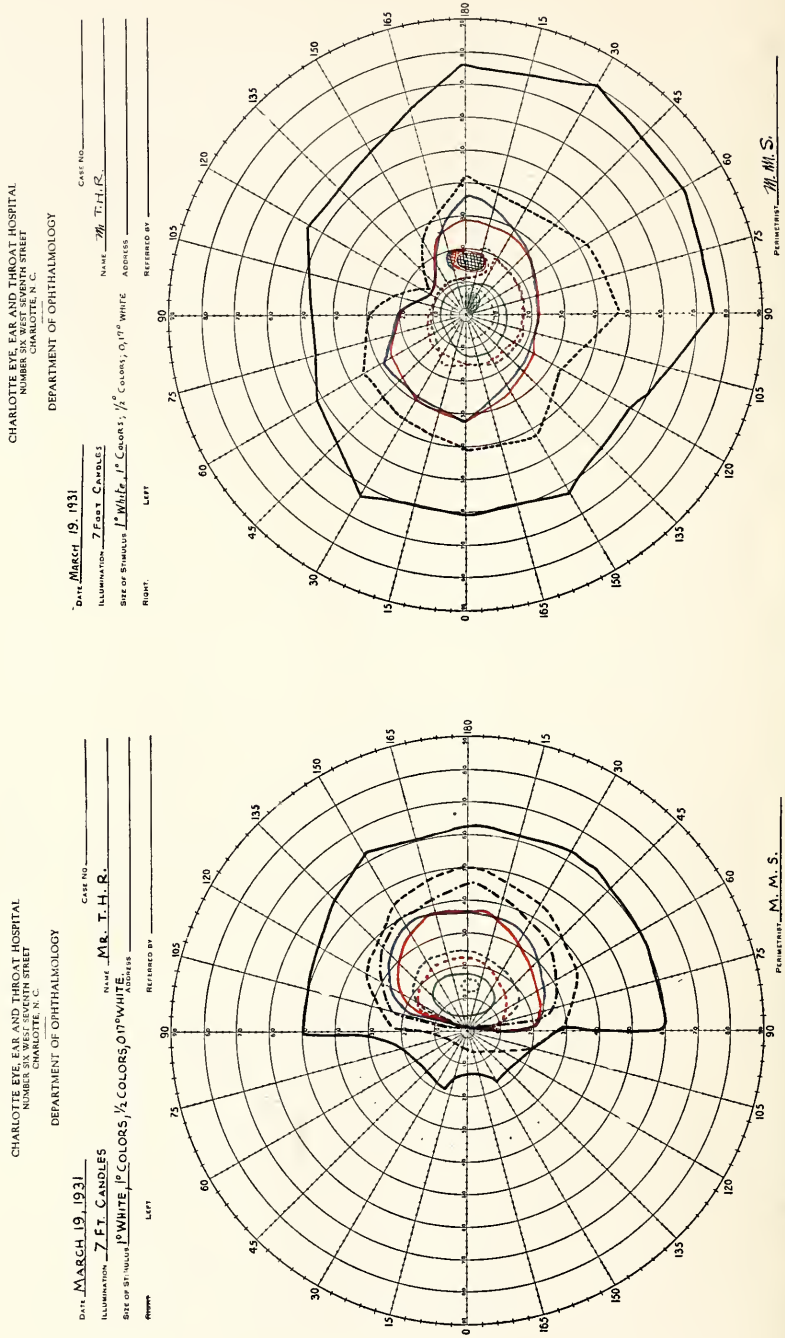
Mr. T. H. R.; white; age 49; when examined 5-6-29 complained of double vision, a tired feeling around his eyes and that he could not read well. With the exception of presbyopic symptoms, which he had had for several years, he noticed no disturbance of vision until four weeks before, when the road signs appeared several times their normal width horizontally, while vertically they appeared as usual. A few days later he noticed that an automobile approaching him appeared at first single then was double but again became single before reaching him. He also noticed that the line which marks the center of the road was double off at some distance but as his eyes followed it from the distance nearer and nearer it formed a V with the apex directed toward him and was single the remainder of the distance. The double vision never occurred nearer than 125 feet. As he rode to the office the morning of the examination he was bothered by this diplopia. Except for an automobile accident in 1925 followed by a nervous breakdown his health had been excellent. He had experienced no more headache recently than he had always had—once or twice a year.

His vision was 20/100 in each eye. The ocular movements were full and the external examination normal in every way. The muscle balance was well within normal limits with the Maddox rod, but with the rod placed vertically over the right or left eye the horizontal part of the streak ran into the light, but could not be seen to the temporal side (this was the first evidence of a betemporal scotoma). The fundi were normal.

The visual fields revealed a temporal hemianopia for the 0.17 degree white test object and a caeco-central scotoma for the one degree white test object with a contracted periphery in the right,



Case No. 5. Adenomatous Cyst of Pituitary. Vision: R. 20/100: L. 20/100.



Case No. 5. Adenomatous Cyst of the Pituitary. Vision: R. 20/20: L. 1/200. 20 Months After Operation.

while the left showed a temporal slant for the one degree and the 0.17 degree white objects on black, a hemianopia for the ½ degree white test object on light gray, a relative scotoma for ½ degree white on medium gray and an enlarged blind spot for the one degree white object.

In spite of urging immediate consultation it was six weeks before he consulted Dr. Francis Grant, who removed a pituitary cyst. His recovery was uneventful and he has been doing his usual work since.

He did not report for a postoperative examination until March 19, 1931. His vision was nearly 20/20 in the right eye and only 1/200 in the left. There was definite atrophy of the left disc. While the right field showed marked improvement the left was very much worse than before the operation. As the right field was definitely more advanced than the left before operation it is probable that the left nerve was injured during the removal of the growth.

Comment: It is interesting that diplopia was his chief complaint and that there was no paresis of any extraocular muscle. This evidently is a case of diplopia from heterogenous field defects associated with defective macular vision without extraocular muscle palsies.[5]

The recent onset of progressive symptoms upholds the fact that scotomatous fields in a chiasmal tumor indicate an actively advancing lesion. The scotoma for green in the right eye indicates the tendency for the scotoma to be permanent in such cases.

Case No. 6. Unilateral Hemianopia.

Mrs. W. A. S.; white; age 34; was referred 1-27-31 by Dr. A. A. Barron for fundus and field study. She sought an examination because of two attacks of unconsciousness 1-24-31. The first attack lasted two or three minutes and the last ten minutes. For thirteen years she has had similar attacks at varying intervals. Her general health has always been excellent.

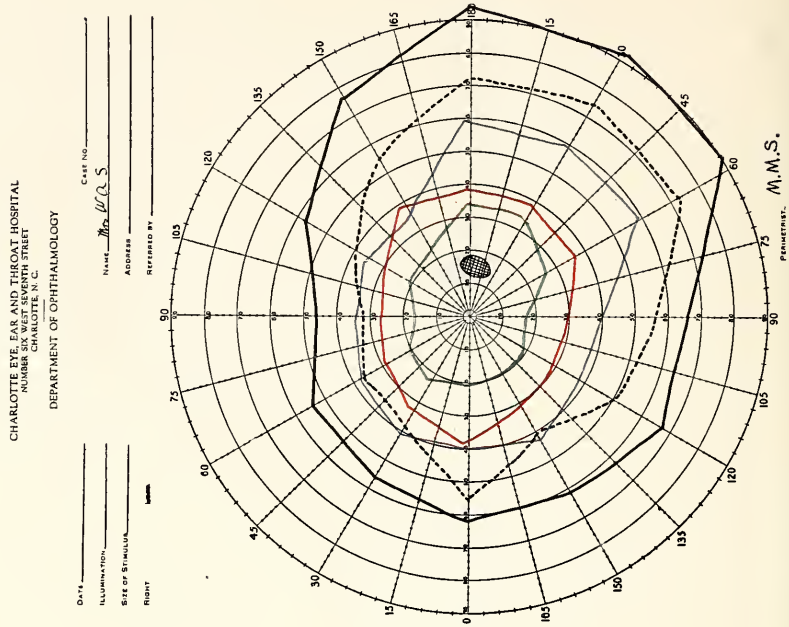
The vision in the left eye has always been poor as long as she can remember, but for several years she has noticed it more than before. Uncorrected the vision in the right eye was 20/20 and the left 20/50; corrected the right was 20/16 and the left 20/40. The fundi were normal.

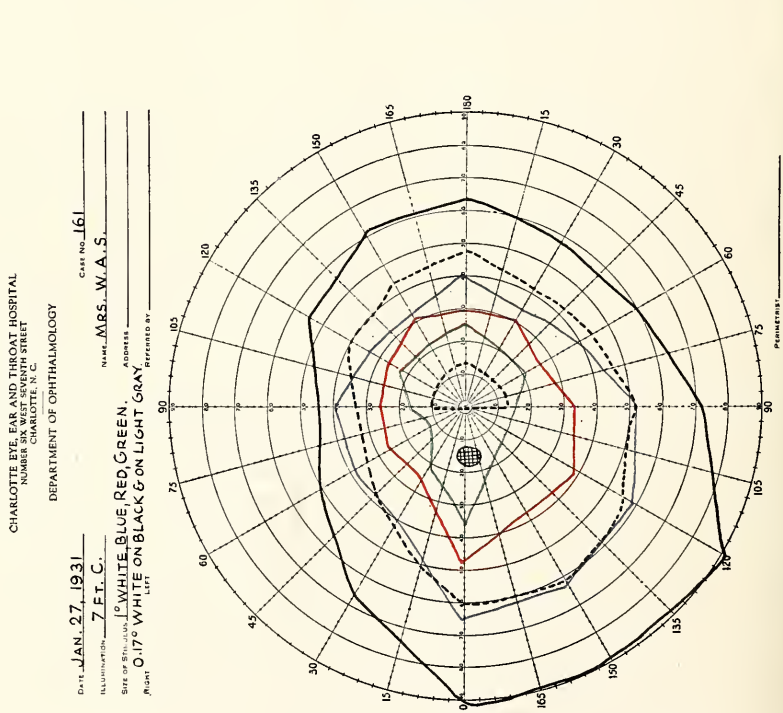
Sinuses, teeth and Wasserman were negative. X-ray showed the right optic canal to be 4.0 by 4.5 m. m. and the left 4.0 by 3.0 m. m. The left field shows a complete hemianopia with the 0.17 white test object on a light gray background.

Comment: The visual fields were taken to determine the cause of the amblyopia and to rule out any perimetric evidence of an intracranial lesion. Two weeks later, when the field was taken, there was a definite cut with the 0.17 white on the light gray, but there was not a complete hemianopia.

It is very interesting to notice the contraction of the optic canal on the side of the defective eye.

She has been asked to report immediately following her next attack, and regularly at two month intervals.

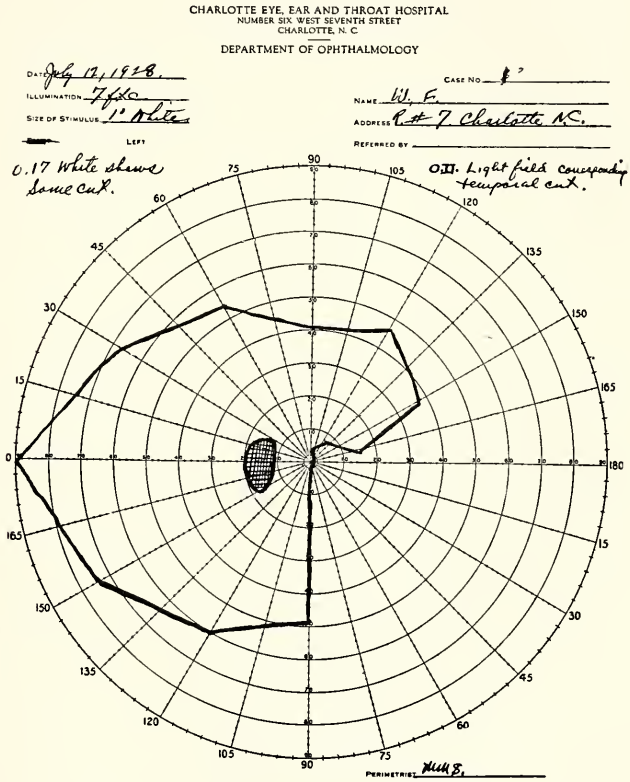




Case No. 6. Unilateral Hemianopia.

Case No. 7. Glioma of the Frontal Lobe Involving the Optic Tracts.

F. W.; white; age 9; was referred by Dr. Myers Hunter 7-11-28. Seven weeks before he complained of his first headache, which apparently came on suddenly. Since this attack he has had vomiting, one to three spells a day. For the past ten days he has had sharp shooting pains through his head every few minutes, and vomiting once or twice at night. June 6, 1928, he was taken to the Presbyterian Hospital. The following morning he became unconscious and remained so for twenty-four hours. Following this attack he has improved until he appeared to be normal when examined.



Case No. 7. Glioma of the Frontal Lobe.

His vision was right shadows and left 20/40. The external examination otherwise was negative except for a convergent strabismus, which has been present since infancy. There was bilateral papilledema with a few hemorrhages near each disc; the right measured 4 dd and the left 2 dd.

The ear, nose and throat examination showed hypertrophied tonsils, a large adenoid mass and the tuning fork showed a No. viii nerve deafness.

There was a defect a little larger than a lower nasal quadrant-anopia in the left field, while the light field of the right eye had a corresponding temporal cut.

Comment: Proper consideration of the visual field changes would have located the lesion in front of the anterior geniculate bodies and above the visual pathway. The defect in the lower part of the field showed that the upper fibers were involved and the fact that temporal and nasal fibers were involved in one eye and only nasal fibers in the other excludes a single lesion above the anterior geniculate bodies.

This case shows the value of light fields. When there is a cut in one field and only light perception in the other eye, the loss of part of the light field can be of the same value, of course, as a defect in the field for an object.

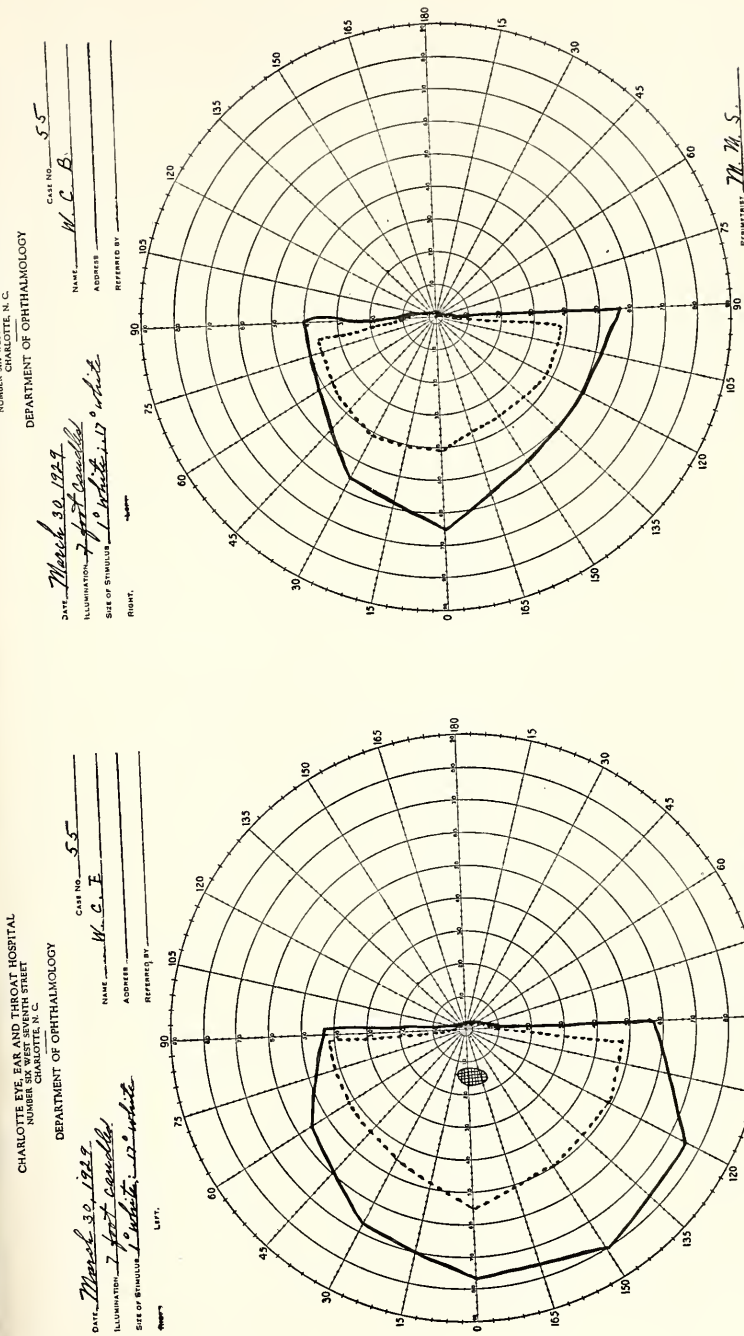
Case No. 8. Glioma of the Left Parietal Lobe with Pressure on the Temporal Lobe Radiations.

Mr. W. C. B.; white; age 48; was referred 1-25-30 for visual field and fundus study by Dr. A. A. Barron. In August, 1928, he had a left facial paralysis, which lasted for six weeks. At times he has been bothered by mental confusion and has felt uncertain in walking. For several months his symptoms have been exaggerated and he has had two automobile accidents with the cars colliding on his right each time.

His vision was R. 20/50 and L. 20/20; with correcting lenses it was 20/15 in each eye. The external examination was negative. The fundi showed papilledema with several hemorrhages on and near the discs, the right being more advanced than the left. There was a complete right homonymous hemianopia with sparing of the macula.

An uneventful recovery followed the removal of a glioma of the left parietal lobe by Dr. Cushing.

Comment: This parietal lobe lesion pressed on the temporal lobe radiations giving a hemianopia whose development must have been gradual. His fields were normal in 1924. The practical point is that with competent examinations at intervals over several years it was not possible to decide whether the condition was functional or organic until the hemianopia developed. Field studies would have determined the lesion earlier, certainly long before he reached the point he could not detect an automobile coming on his right side.



Case No. 8. Glioma of the Left Parietal Lobe. Vision: R. 20/15: L. 20/15.

Case No. 9. Tumor of the Corpora Quadrigeminae.

Mrs. D. H. O.; white; age 34; was referred by Dr. J. P. Munroe, 10-28-30, complaining of "blind staggers." For three months she had noticed that in trying to read she had to hold her book far to the right or left. She consulted an oculist who attributed the trouble to her general health. For two months she has had a tendency to stagger and a feeling as though something were loose in her head. She never has fallen and does not have a tendency to fall in any given direction. The only attack of nausea and vomiting occurred last week, which she attributes to something she ate. She does not complain of headaches.

As she attempts to see directly ahead she turns her eyes and head from side to side. The vision is 20/200 in each eye and with correcting lenses it is 20/30. The ocular movements are full, the pupils are 5 mm., round and react sluggishly to light. The right disc is blurred and slightly elevated while the left shows a papilledema of 2 dd. with a small hemorrhage at its center and another just off the lower nasal disc margin. The visual fields show a relative central scotoma of each eye with concentric contraction of the periphery.

12-4-30. The papilledema is lessened, the hemorrhages are nearly absorbed, and the scotoma is less dense, being detected no longer with 0.17 on black but with the 0.17 degree test object on light gray.

A tumor of the corpora quadrigeminae was disclosed at autopsy, death having followed an exploratory operation by Dr. Cushing.

Comment: Increased intracranial pressure may produce a central scotoma with the diagnosis of retrobulbar neuritis resulting. This case from the perimetric standpoint, particularly since the scotoma became less dense, would point in this direction. The swelling of the discs would not have eliminated it since edema does occur in some such cases, but the vision of 20/30 and only a relative scotoma would hardly be compatable with a retrobulbar neuritis so severe as to cause edema of the discs.

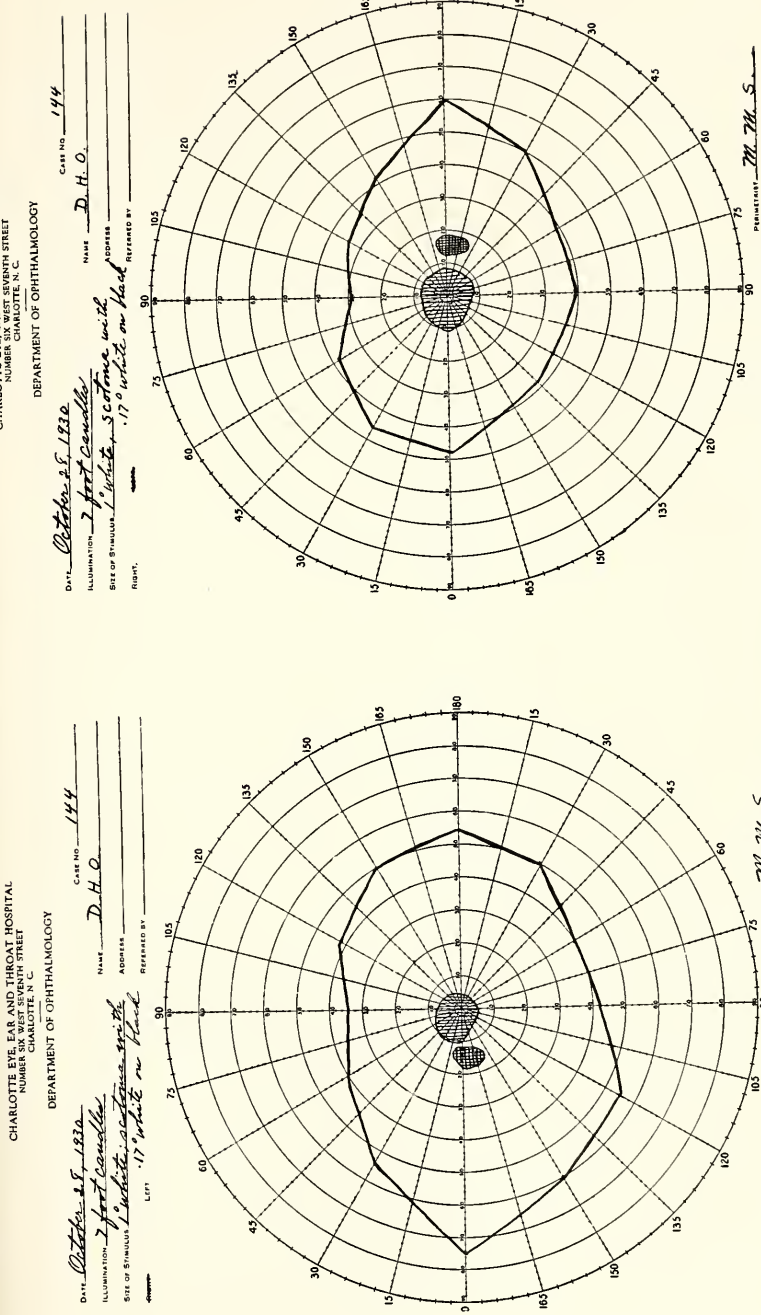
Case No. 10. Metastatic Hypernephroma of the Occipital Lobe.

Mr. V. E. T.; white; age 41; was examined 9-8-30. He complained that a glimmering appeared before his eyes 10 days before, that his eyeballs ached and that he had trouble in reading. He had not had much headache, but had been very nervous for several months.

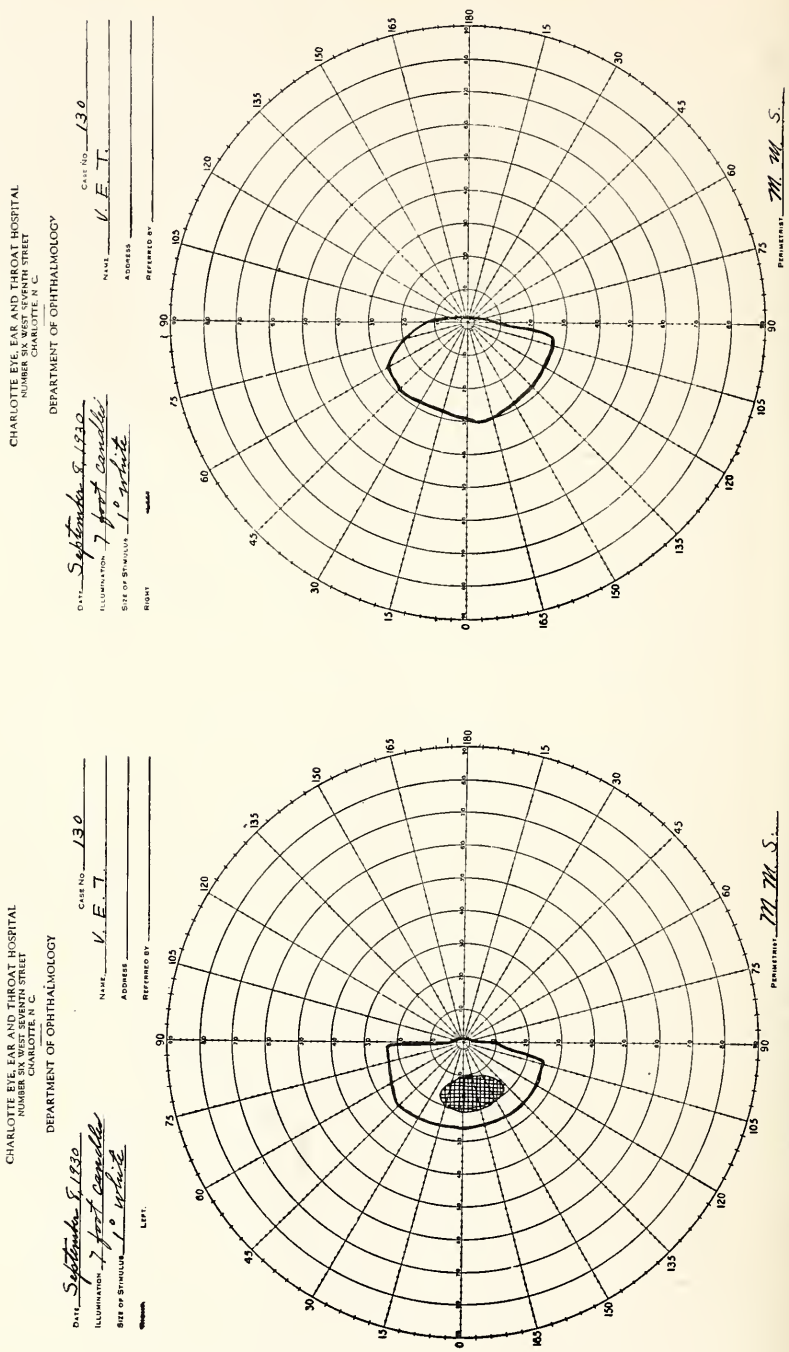
The external examination was negative, the fundi normal and the vision 20/30 in each eye. There was a right homonymous hemianopia with marked peripheral contraction and a greatly enlarged blind spot.

Dr. Dandy removed successfully a hypernephroma of the left occipital lobe.

Comment: This patient was referred to determine whether badly diseased tonsils should be removed to clear up his eyes. The problem of foci of infection comes up in the consideration of many intracranial conditions with tonsillectomy occurring frequently before the diagnosis is made.



Case No. 9. Tumor of the Corpora Quadrigeminae. Vision: R. 20/30: L. 20/30.



Case No. 10. Metastatic Hypernephroma of the Occipital Lobe. Vision: R. 20/30: L. 20/30.

Case No. 11. Syphilitic Basal Meningitis or Gumma.

Mr. C. W.; white; age 28; on 1-14-30 complained that he had had headaches in the frontal and temporal regions for three years. There was a dull pain all the time which became very severe at intervals of one to three months. Nothing eased the pain, which would begin to become less after ten days and gradually wear off. He stated that blood taken from his arm was reported negative three months before. There was an inconstant nystagmus to the right and left, which was sometimes rotary and sometimes horizontal. His vision was: right, 20/70, and left, 20/30. Both discs showed definite papilledema. The pulse rate was 50. The spinal fluid Wasserman was four plus. 3-5-30, following mercury and bismuth the vision was: right, 20/50, and left, 20/20, the papilledema had disappeared and his headaches were entirely gone. After the vision reached 20/40 and 20/20 it has remained the same, with the discs showing secondary atrophy. The visual fields showed a complete right homonymous hemianopia with division of the macula. A hemianopia with sparing of the macula remains after treatment.

Case No. 12. Hemiplegia with Right Hemianopia.

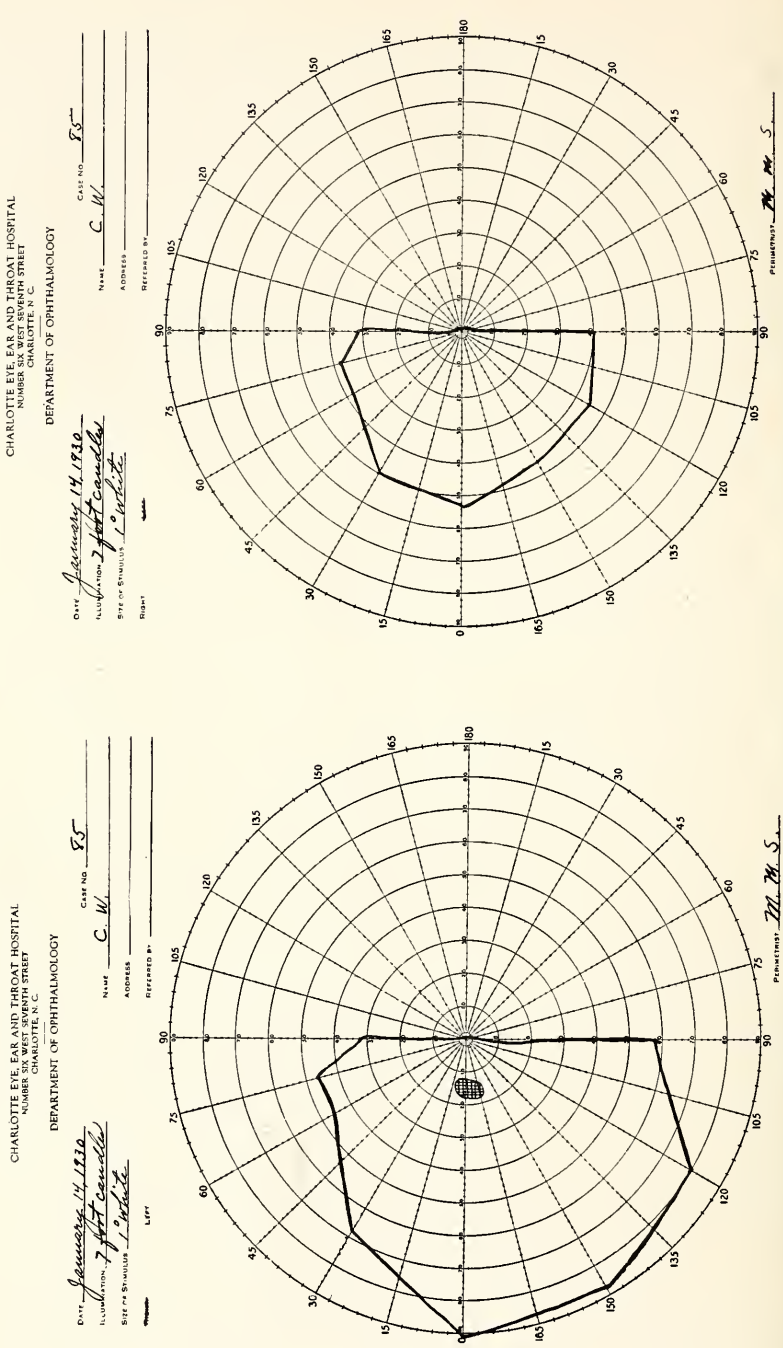
Mr. J. K. H.; white; age 74; was examined 7-22-30, two months following the onset of a left hemiplegia. Immediately after the attack of apoplexy he was unable to use the left arm and leg or to talk so that he could be understood, and his vision was blurred. The return of function has been progressive, except in his eyes. He now speaks distinctly and has good use of both arm and leg. He still is unable to read and there is a blur over his eyes.

His vision is 20/30 in each eye, but fades after a few seconds; on 1-3-30 it was 20/20. There is marked arteriosclerosis of the retinal vessels with senile retinitis. The visual fields show a right homonymous hemianopia with marked contraction of the periphery. On 7-22-30 the hemianopia had disappeared, but there was marked peripheral contraction. On 2-3-31 the peripheral fields had greatly improved, as had his general health. He could now read for half an hour without tiring.

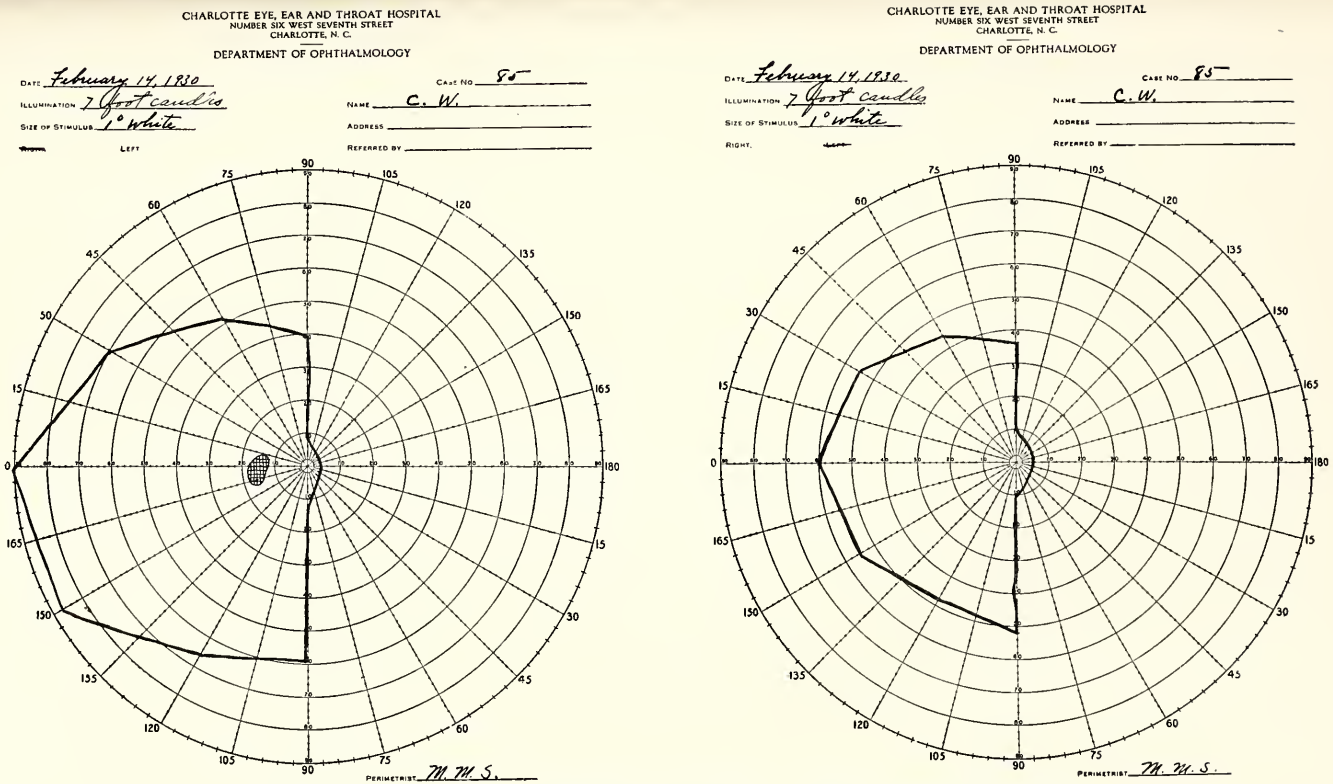
Comment: This right homonymous hemianopia was present two months after an attack of apoplexy in an elderly man who had had generalized arteriosclerosis with hypertension for several years. There must have been hemorrhage in the brain tissue comparable to those often seen in the retina of such a subject, which slowly absorb for months to finally disappear without causing loss of function. As the lesion was left sided and there were no other cerebral symptoms other than the hemiplegia and hemianopia the anterior choroidal artery supplying the posterior fibers of the internal capsule must have been involved.

Case No. 13. Right Upper Quadrantanopsia with Aphasia.

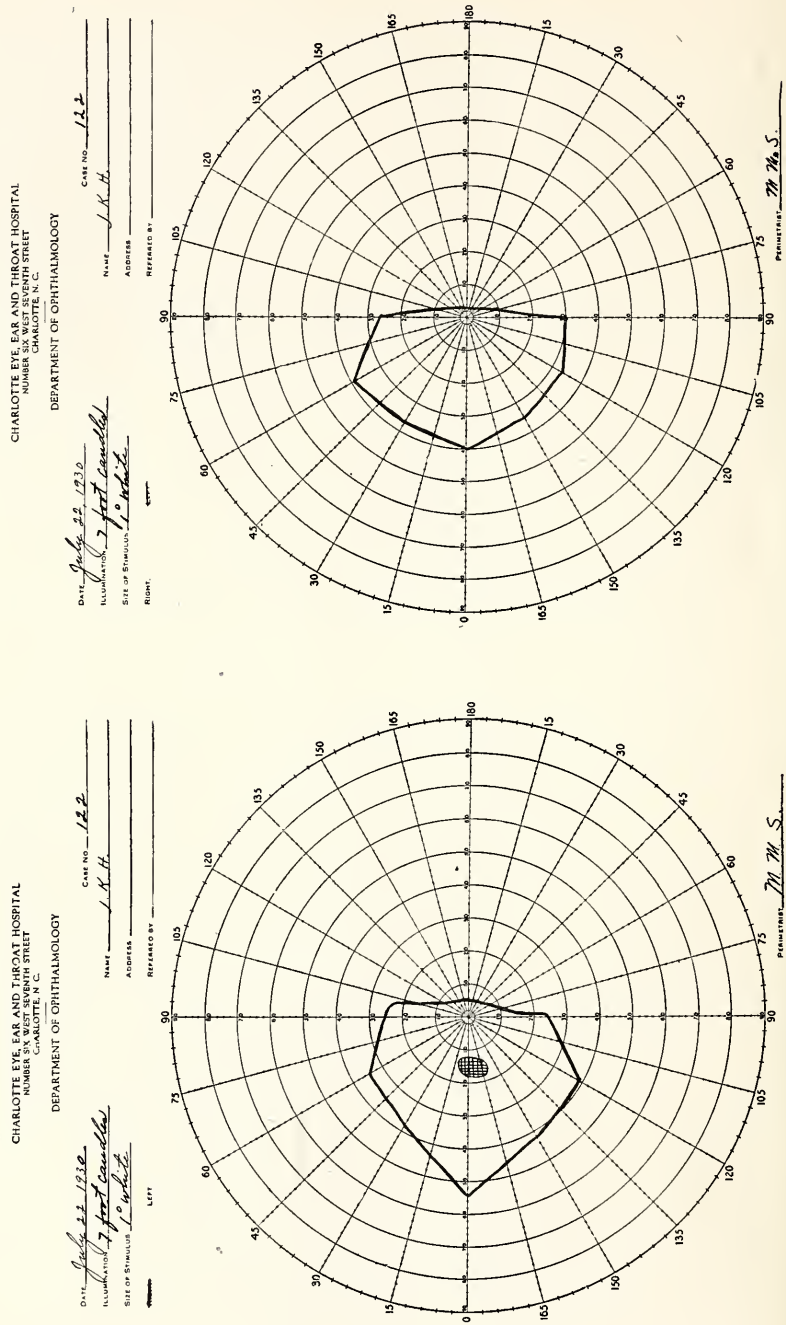
Dr. I. J. H.; white; age 62; came in 12-3-29 complaining that his vision was so blurred in his right eye that it bothered him when driving his car. In September, 1928, he had a heart attack, which



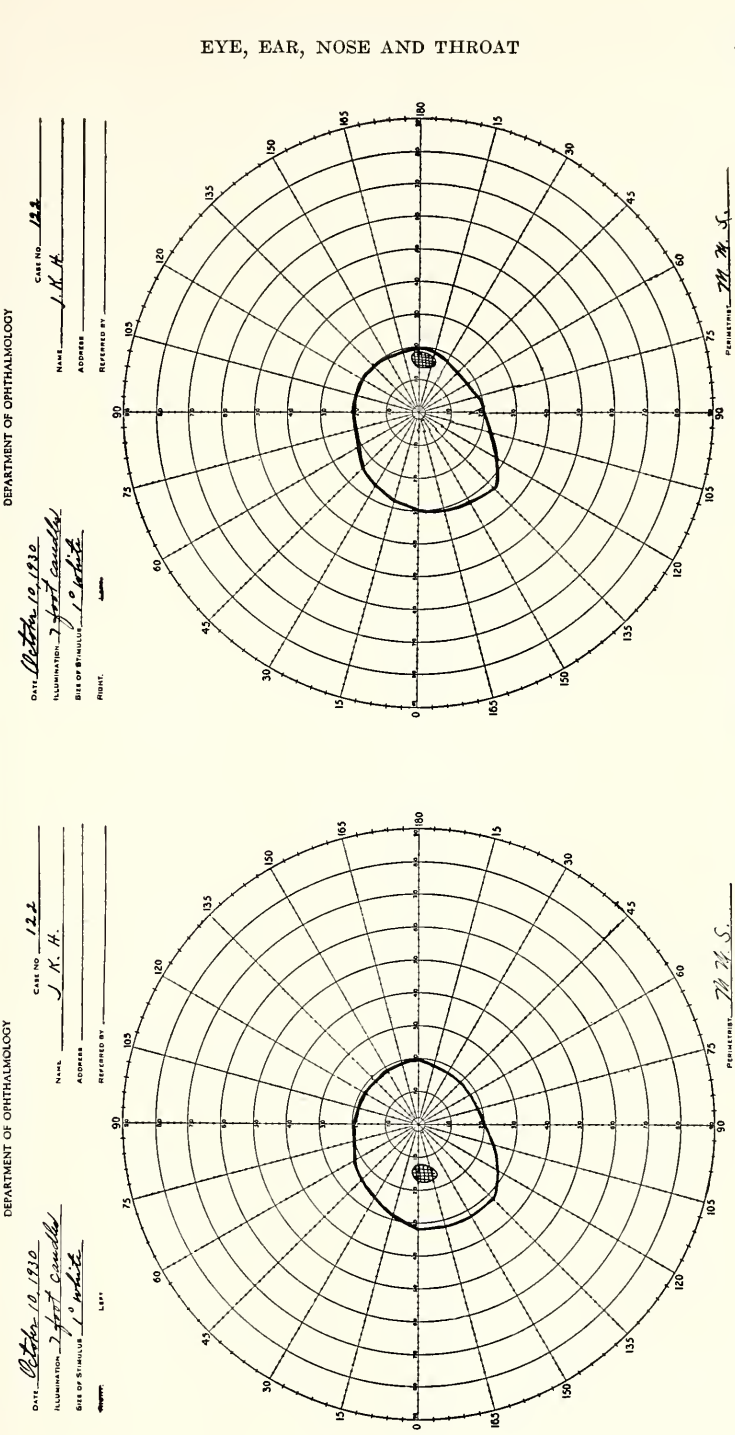
Case No. 11. Syphilitic Basal Meningitis or Gumma. Vision: R. 20/70: L. 20/30.



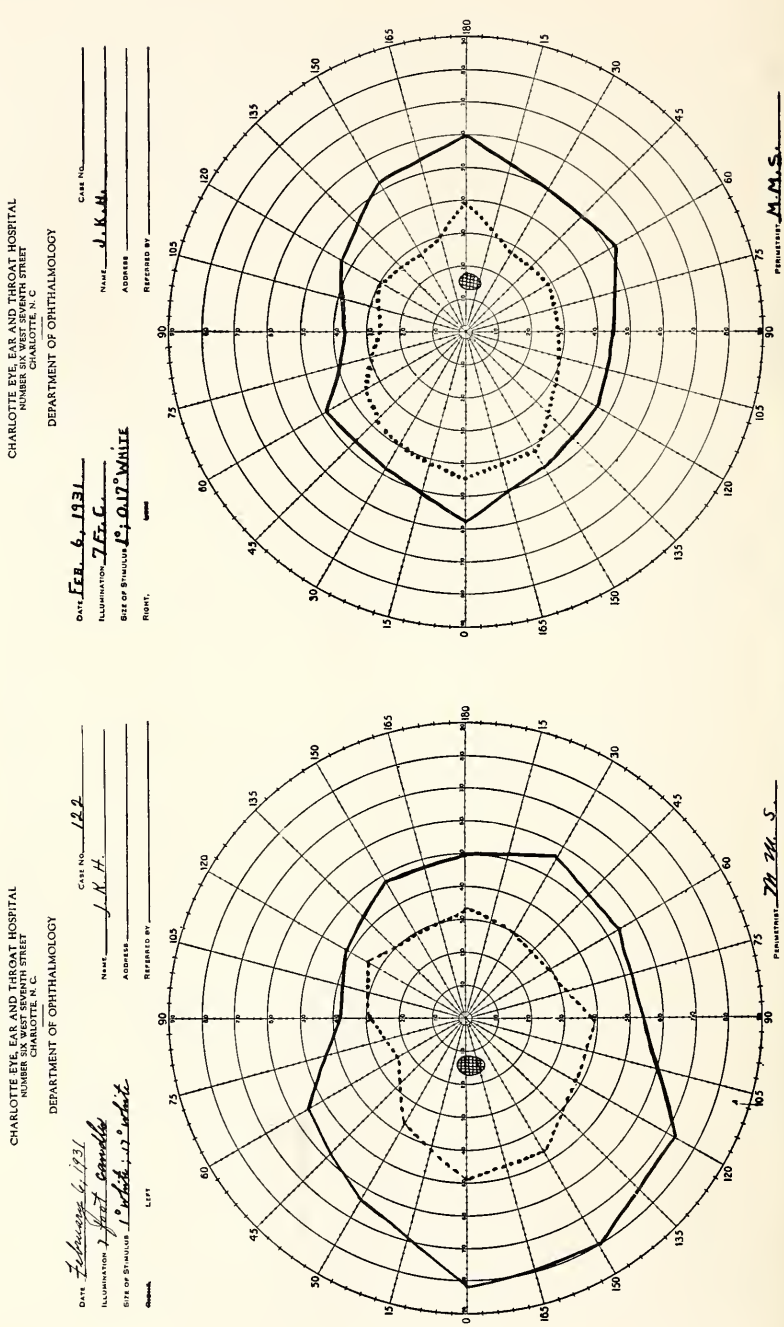
Case No. 11. Following Antisyphilitic Treatment. Vision: R. 20/40: L. 20/20.



Case No. 12. Hemiplegia with Right Hemianopia.



Case No. 12. Hemiplegia with Right Hemianopia, 10-10-30.



Case No. 12. Hemiplegia with Right Hemianopia, 2-6-31.

kept him in bed for a week, but which entirely cleared after taking digitalis for several days. His blood pressure had been high, but has been normal since. In May, 1929, he went to the hospital for four days for the itching of "nettle rash," not because he was sick. While in the hospital he became confused, noticed that his vision was blurred and found that he could not call the names of familiar objects. This loss of memory gradually improved, but prevented his return to work until 11-25-29. Up until this time there had never been any disturbance of vision other than presbyopic symptoms. His vision was: right, 20/40, and left, 20/50; with his glasses it was 20/20 and 20/30. The fundi showed definite arteriosclerosis. The blood pressure was systolic 190 and diastolic 78. The fields showed an upper right quadrantanopia which was the same for all objects.

Comment: In my experience patients rarely describe a hemianopia accurately. They usually say their vision is blurred, or, as in this case, one eye is blurred.

Case No. 14. Homonymous Defect in the Lower Left Quadrant Occurring During a Toxemia of Early Pregnancy.

Mrs. A. D.; white; age 35; was examined 2-9-29. Her vision became suddenly bad during a toxemia occurring in the first few months of pregnancy in 1926. It improved somewhat until 1928, but none since. Vision in each eye was 20/30; with correcting lenses 20/16. The fundi were normal in all respects. There was a defect in the lower left quadrant of each visual field.

Comment: Usually the complaint of poor vision would be ignored when the corrected vision becomes 20/16, with no pathology in the fundi.

Case No. 15. Partial Right Hemianopia Following an Injury.

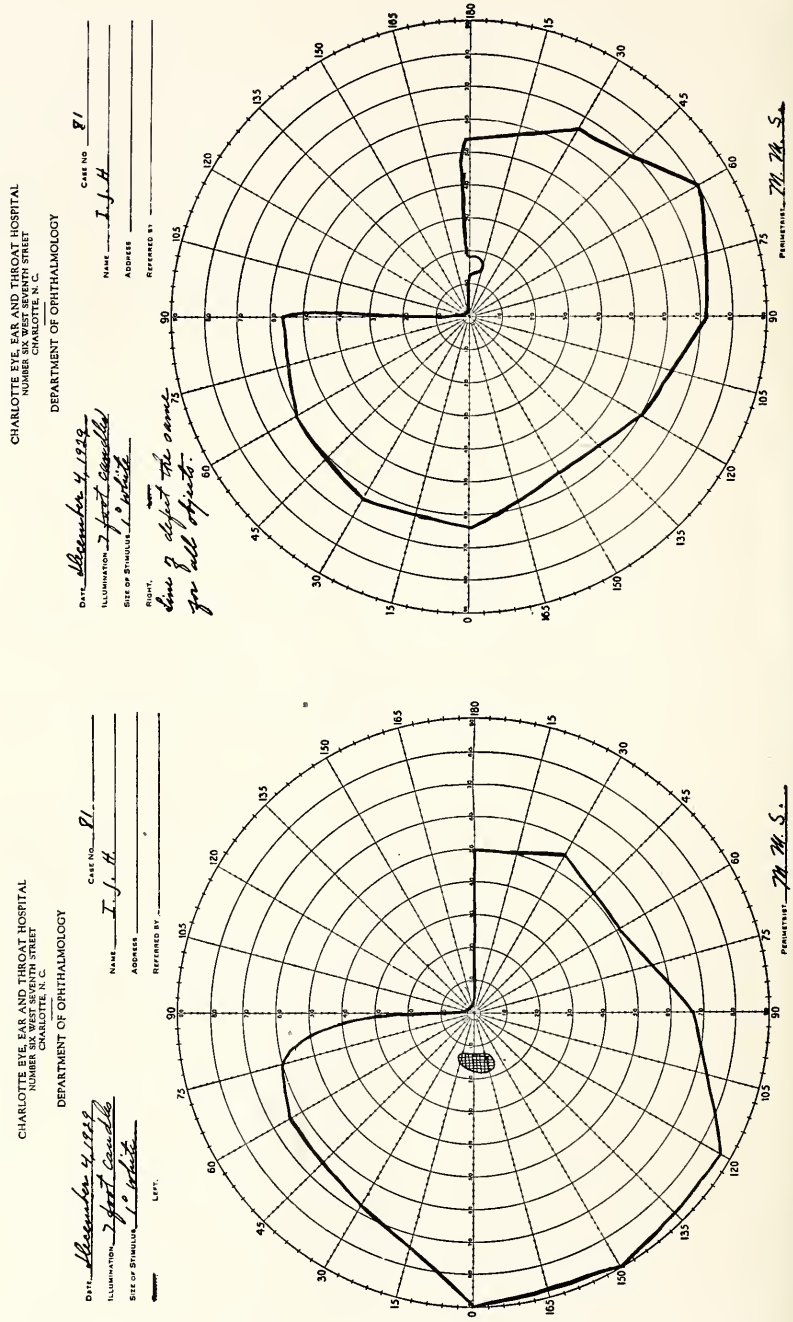
Mr. G. A. M.; white; age 55; was examined 3-19-31. In an automobile accident one month before he had been knocked unconscious by a contusion of the abdomen when he was thrown on the steering wheel. He felt that he had had no injury to his head. While in the hospital he noticed that he frequently stumbled over things, and recently he has realized that they are always on his right side.

The fundi show slight arterial sclerosis and the blood pressure is 180/80.

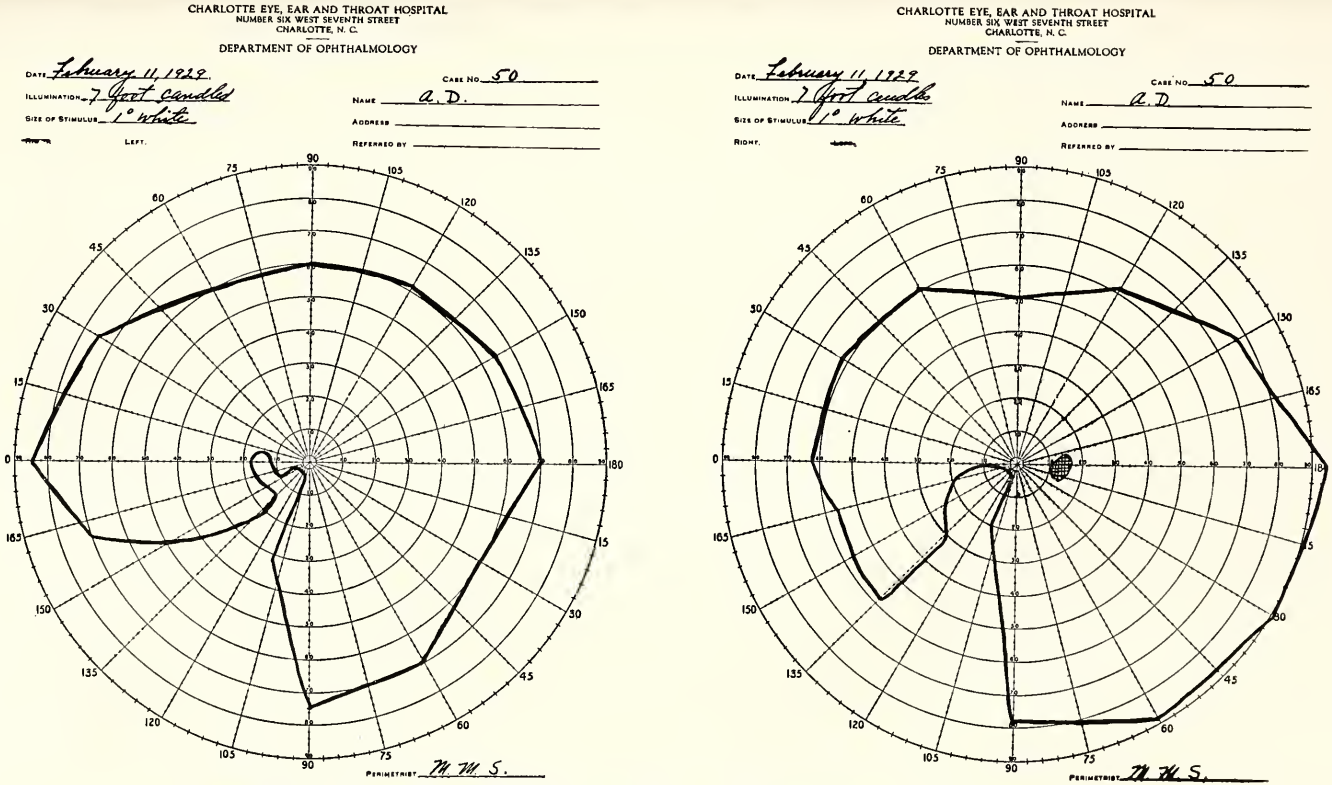
The visual fields show a partial right homonymous hemianopsia, the defect involving a little more than the lower quadrants.

Case No. 16. Enlargement of the Blind Spots due to Increased Intracranial Pressure.

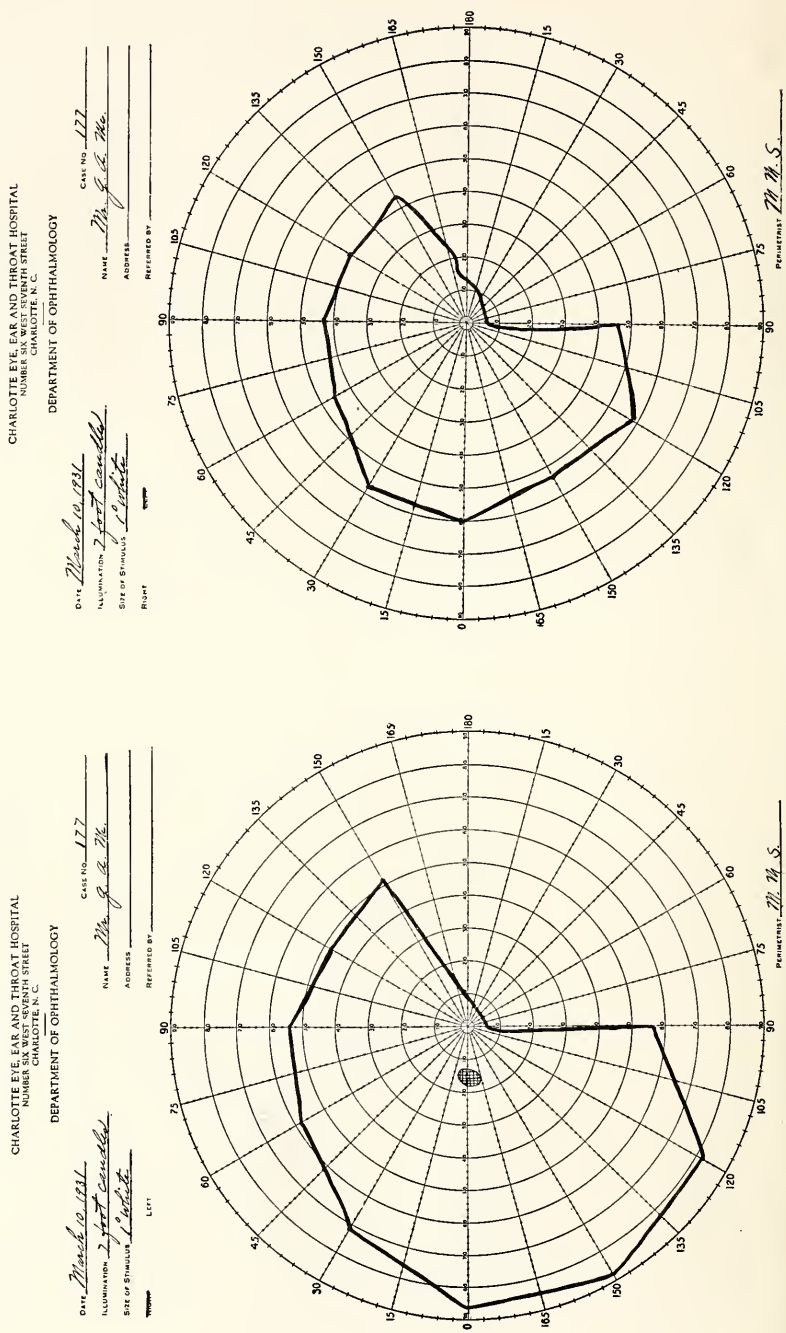
Mrs. E. B. V.; white; age 39; 5-8-29. This patient developed symptoms of a brain abscess with a bilateral papilledema following an acute otitis media. The fields illustrate the enlargement of the blind spots, which may be the only perimetric evidence of increased intracranial pressure. It is interesting to note that she has apparently recovered after a decompression, although no abscess was located.



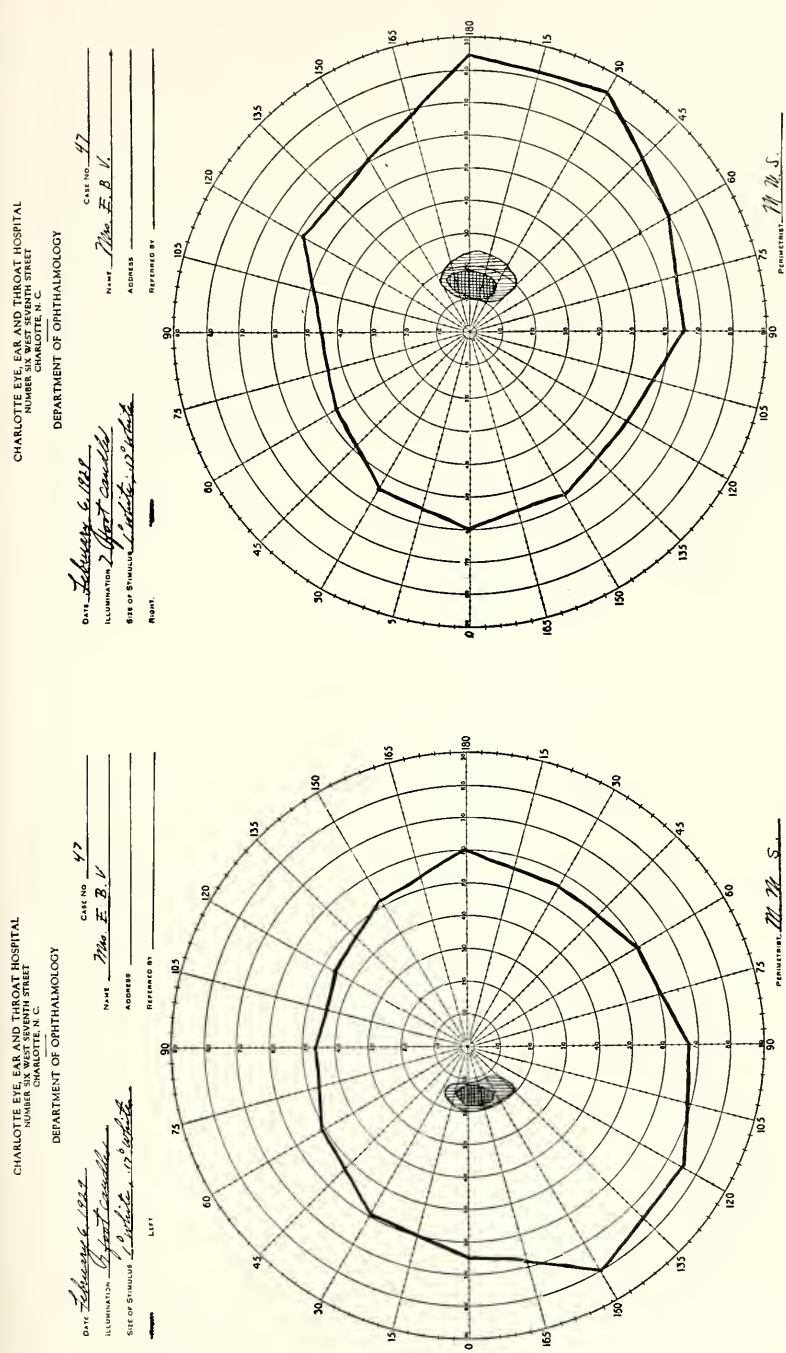
Case No. 13. Quadrantanopsia with Aphasia.



Case No. 14. Homonymous Defect which Occurred During Toxemia of Early Pregnancy.



Case No. 15. Homonymous Defect Following an Injury.



Case No. 16. Enlargement of the Blind Spot Resulting from Increased Intracranial Pressure.

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Chairman Lilly: Since we have several papers on intra-cranial conditions, the discussion will be postponed until all the papers on that subject have been presented.

I shall ask Dr. Hart now to present our invited guest.

(Dr. Hart, the Secretary, presented Dr. Temple Fay, Professor of Neurosurgery, Temple University, Philadelphia, Penna., who read a paper entitled "Intracranial Pressure and Cerebral Symptoms Associated with Neuro-oto Ophthalmological Complications.")

INTRACRANIAL PRESSURE AND CEREBRAL SYMPTOMS ASSOCIATED WITH NEURO-OTO, OPHTHALMOLOGICAL COMPLICATIONS

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It is not the purpose of this paper to discuss the technic evolved or methods of precedure used at the present time to effect relief from many neuro-oto ophthalmological complications. It is, however, of extreme importance to understand the mechanism, and institute the proper treatment surrounding the many complications which secondarily involve the brain. The practice of otolaryngology and ophthalmology brings the specialist frequently into contact with serious symptoms of intracranial pressure. It would be best perhaps to give briefly, therefore, the salient factors to be considered when serious complications threaten the survival of the patient.

In a proper understanding of the mechanisms surrounding intracranial pressure and the prompt measures which may be instituted for its relief, lies the possibility of saving many cases which would otherwise succumb.

The conditions which predispose to intracranial pressure and hence to unfavorable complications require a brief analysis.

The craniovertebral cavity is practically a "closed box" after the closure of the fontanel and union of the sutures. The volume within this craniovertebral cavity is fixed at any one particular time, and changes in the relationship of volume between the three fundamental

components in this cavity, determine the cerebral symptoms, and frequently the survival of the patient.

The three components are:

(A) Cerebrospinal fluid.
(B) Circulating arterial and venous blood.
(C) Nerve cells, supporting structures, and the meningovascular network.

As fluids are incompressible, it is evident that if the volume of spinal fluid be increased by 1, 10, or 50 cc. there must be a compensatory adjustment in the other two factors, either:

(A) Blood is squeezed from the cranial cavity to compensate for this increase in fluid, or
(B) The failure of the arterial venous circulation to give way before the oncoming increase of spinal fluid will produce atrophy and destruction of the brain substance through the mechanism of pressure, and consequent limitation of blood supply and oxygen to the functioning cells.

Hydraulic pressure within the cranial cavity is a real condition, and hydraulic pressure in the form of a fluid cast represents the most perfectly applied type of surface pressure that we can create. When pressure is exerted on the surface or against the structures of the body, at any one point, such as a tight bandage or cast, pulsating pressure by an aneurysm, or pressure by tumor masses, an atrophy of the tissues impinged upon promptly and rapidly follows. Because the fixed pressure of this hydraulic cast as a pulsating membrane, is continuous, without intermission during long periods of time, its effects are most devastating to the brain, and even short periods of high pressure will produce within a few days to a week, astonishing amounts of cerebral atrophy.

Cerebrospinal fluid is produced in definite quantities within this closed system, each day. It must be absorbed to an equal amount, or over-accumulation and displacement of the other factors occur. The average amount of spinal fluid produced in the adult placed on a dry diet, and receiving an exact thirty total ounces of fluid per day by mouth, is 50 cc. When larger quantities of fluid are ingested, spinal fluid production increases. In the normal individual, the outlets for spinal fluid are adequate to care for and meet even excessive amounts of production, without disturbing the balance and relationships between the three components of the craniovertebral cavity. However, there is a wide variability existing among patients regarding the compensatory activity of the outlets, from a variety of causes. In the cases where the eliminating mechanism is disturbed or deficient, serious over-accumulations of fluid occur from apparently trivial conditions.

In this group, alarming symptoms develop, and fatal terminations occur from procedures which have otherwise been successful in a majority of cases. This is true throughout medicine and surgery, and is encountered in a wide variety of diseases. Unexplainable "poor risk" of one individual as compared to the majority of cases, is a source of constant worry to the physician.

In the last analysis, unsuspected complications prove to be stupor, convulsions, and respiratory failure. Those deaths attributable to cardiac and renal insufficiency are more or less anticipated, as the clinician has had the opportunity to study the patient prior to operative intervention, and knowingly he assumes the risk consequent upon these disturbances.

He, however, unknowingly aids and abets the process of cerebral edema, stupor, and respiratory failure, in his attempts to treat these known complications. The recent knowledge obtained from the clinical and investigative work at Temple University School of Medicine has established certain fundamental deviations from former accepted doctrines, the acceptance of which has led to a more rational and satisfactory management of these problems.

A brief analysis of the present concepts will be given: Oxygen must reach the brain at all times in order to maintain its function, especially those centers which we recognize as having to do with consciousness. Oxygen may be denied the necessary cells on the cortex or in the important ganglia in many ways, therefore for our purposes these will be divided into three groups of deficiencies.

(1) Low tension of oxygen in the surrounding atmosphere (rare). Obstructions in the nasopharyngeal air spaces such as, adenoids, enlarged tonsils, mucous, tracheal membranes, laryngeal paralysis, tracheal obstruction, foreign bodies, bronchi plugged with mucous, collapsed lung, drowned lung, hypostatic and true pneumonia, in their space filling properties.

(2) Transportation of oxygen from the alveoli of the lung to the end point in the capillaries nourishing the brain cells is determined by a diffusion tension in the lungs; the number of red blood cells available as carriers; deficiency of the propulsive circulating mechanism, inadequate hemoglobin; patency of the arteries and arterioles (as to size of the lumen), and above all, oxygen dissociation in the periphery in terms of diastolic pressure.

Dissociation of oxygen occurs best between 60 and 40 mm. Hg. of pressure. Hence, if the diastolic pressure is below 40 mm. Hg. or remains in the periphery around 90 or 100 mm. Hg., insufficient oxygen reaches the functioning cells, thus denying the tissues of their supply, irrespective of the efficiency of the heart, lungs and available supply of oxygen to the red cells.

Death in terms of anoxemia lies in this variation of blood pressure relationships in the periphery. If oxygen has left the red cell before it reaches the functioning cortical groups, symptoms of dullness, stupor and respiratory failure will ensue, although the patient is apparently breathing normally; pulse and cardiac rates are satisfactory and the general appearance is one of adequate oxygen supply. Diastolic values above around 100 in the periphery makes it difficult for the oxygen to leave the red blood cell and hence the tissue cells likewise suffer from anoxemia. In the last analysis, it makes no difference how much oxygen is placed on the red cell, if this carrier does not transport it to its intended tissue cell group, or fails to give it up upon arrival, the result will be oxygen starvation or anoxemia.

(3) Mechanical obstructions in the periphery, such as collapse of the capillaries due to insufficient arterial tension, vasomotor constriction, with reduction of blood supply to the part; interstitial edema in terms of hydraulic pressure on the capillaries with consequent depletion of the necessary blood supply: intercellular edema with its subsequent change in physiological function of the cell, all contribute to the gradual failure of important cerebral centers.

The complications of the first group are self evident, and can be determined readily by our clinical methods of examination, but it should always be borne in mind by the practitioner, as many times a real oxygen deficiency is present, though not suspected, in a partial obstruction of the trachea or bronchi; collapse of portions of the lung, or by hypostatic pneumonia as well as turgescence in the pulmonary circulation.

Group 2, can likewise be determined through the usual clinical methods of study, by routine blood count, careful charting of the systolic, diastolic and pulse pressures each hour, or four times a day, during the pre-operative and post-operative observation of the patient.

In the third group lies the unrecognized menace and most frequent cause of unexplained death.

The following symptoms must be seriously considered: Increase in intrathoracic pressure (cardiac decompensation) with increase in venous pressure on the right side of the heart, is transmitted immediately back along the jugulars to the venous mechanism of the brain. As there are no valves between the heart and brain, stasis along this route or compression so as to limit the venous return produces immediate cerebral venous stasis, over-filling of the venous channels within the skull, increase in blood volume, and if not adequately compensated for by a shift of spinal fluid volume, there results not only increased pressure, but tissue edema similar to that seen in obstruction of important venous channels in the arms or legs. Thus, occlusion of the jugulars by pressure from an enlarged thymus gland, becomes the most common cause of sudden death known as "status lymphaticus." The recent studies at Temple University Hospital by Konzelman, Chamberlain and Winkelman, have shown both pathologically and roentgenographically as well as neuropathologically, that thymic death is due to intracranial pressure caused by complete closure of the jugular veins, as they enter the bony ring of the thorax from swelling of the thymic tissue lying adjacent to the veins and producing tremendous back-pressure and cerebral edema. Obstruction by foreign bodies in the neck, and malignant metastasis, so that a chronic intracranial pressure is developed by jugular obstruction, may, upon the addition of ether, increase intracranial pressure to a lethal point.

The importance of jugular outlets at the base of the skull has been pointed out by Swift, and it has been found that in from 20 to 30% of patients so far examined, profound venous anomalies occur such as: stenosis of one jugular foramen with compensatory enlargement of its fellows; bilateral stenosis, and the combination of these two factors. Usually the right lateral sinus and jugular are larger than the left, and is the more important in its drainage of the longi-

tudinal sinus and cortical venous return. It has been noted in several cases of unexplained death that the lateral sinus and jugular on one side, alone, drained the entire superior sinus and the cortex, whereas, its fellow drained only the straight sinus and veins of Galen, little or no communication occurring at the Torcular Herophili, as is generally supposed. Swift has advanced the view that the size and relationship of these important sinuses determine the early or late appearance of choked disk in cases of cerebellar and cerebellopontile angle tumors. The variations as to papilloedema on the two sides depends on the drainage compensation in the relative size of these sinuses. In my opinion, this is the only logical theory so far presented to explain the rapid occurrence of choked disk from certain tumors situated in the posterior fossa. Where the lateral sinus is more important on one side than the other, a tumor situated in the cerebellum or cerebellopontile angle produces rapid increase of intracranial pressure by direct occlusion of the sinus, with the consequent stasis of circulation to the whole brain.

On the other hand, where the sinus is not important, tumors situated close to a relatively undeveloped venous system, do not produce choked disk, or if at all, not until focal signs are well established, and late in the course of the tumor growth. It is Swift's belief that the important drainage of the venous system at the base, especially through the inferior petrosal sinus, is responsible for the papilloedema. There can be no question about the fact that intracranial pressure has been induced rapidly, by closure of the more important lateral sinus and jugular bulb, whereas, tumors of similar size, associated with less important lateral sinuses at the base, have produced little or no change in pressure or in papilloedema. This has greatly assisted in explaining why one case may progress rapidly, with fulminating signs of pressure where another may continue without symptoms.

With the otologist this becomes an important consideration, in that ligation or packing of the lateral sinus is usually attended with no serious consequences. On the other hand, prompt and distressing symptoms arise from such a procedure when venous anomalies are present, and the all important sinus is abruptly blocked. The variability lies in the importance, and size of the two sinuses, and it has been my experience to see on several occasions one lateral sinus draining directly the entire longitudinal sinus without communication at the torcular with its fellow. Jugular pressure produced in each case an immediate rise of intracranial pressure to 30 mm. Hg. on the side of the enlarged lateral sinus, whereas, pressure on its fellow produced only 2 mm. Hg. of pressure in the manometer, thus indicating the tremendous importance that must be placed upon this consideration.

Dr. W. E. Chamberlain has developed a roentgenographic technic which clearly shows the jugular foramina, and the relative importance of the lateral sinus. This can be obtained by a special view of the base of the skull, and should be taken as a precautionary measure, along with films of the mastoid, if exploration or sinus ligation is anticipated.

It is perfectly true that ligation of one jugular is frequently without serious consequences following thrombosis, and even both jugulars have been ligated, with the survival of the patient. However, these thrombotic obliterations were not produced immediately, and sufficient time elapsed to permit collateral circulation through emissaries from the skull, and the large venous plexus associated with the perivertebral drainage, thus permitting compensation after closure of the jugulars.

It is evident that if the important jugulars be closed abruptly by either ligation or packing, a generalized cerebral edema will ensue unless adequate compensation is forthcoming. Every facility for collateral circulation should be given to the patient. Above all, the head should be elevated, and strict avoidance of tight or restricting bandages around the head should be observed. The venous collateral supply from the skull, through the superficial veins is extensive, and one can demonstrate readily the effect upon cerebral circulation from the use of a tight bandage which restricts these points of overflow.

BRAIN ABSCESS

In upper respiratory tract infections, headache, torpor, and often vomiting occur, and signs of cerebral irritation and pressure give rise to real alarm. Two factors must be considered in this problem:

(1) What venous obstruction may be present to promote cerebral stasis and edema?

(2) Has the acuity of the extracranial infection produced a marked increase of the arterial blood supply to the head?

Both of these factors are concerned with intracranial pressure and in many upper respiratory infections, the increase in blood supply required to the infected area, finds no localization, because what is demanded through the common carotid for use in the field of the external carotid artery, cannot be separated at the bifurcation from what will also be delivered to the vascular field of the internal carotid. Hence, congestion and headache, with a rise in intracranial pressure are frequently associated with upper respiratory infections. Associated with this is cerebral venous stasis and edema, due to pressure on the outlets for blood from the skull. The consequent diminution of oxygen to the functioning cells is followed by symptoms which may be more or less harmless or profound. An ice bag to the neck, rather than to the forehead, so as to help control the carotid flow, favoring of venous circulation and return, are two fundamental considerations of treatment, where these cerebral signs are present.

Where cerebral symptoms occur, the physician's attention should also be concerned with diminishing spinal fluid volume, so as to permit reduction of intracranial pressure and aid general circulation, to permit the necessary space requirements demanded by the increased blood supply. As spinal punctures are not advisable in the presence of upper respiratory tract or mastoid infections, unless signs of meningitis are already present, the reduction of cerebrospinal fluid volume may be accomplished in a physiological manner. The patient's intake of fluid is curtailed to twenty total ounces per twenty-four

hours, and should not exceed thirty total ounces, even though toxemia and hyperthermia are present. Dry diet, solid in character should be given, in sufficient quantities to meet the temporary needs of the patient. Purgation may be utilized by giving magnesium sulphate. Rapid dehydration is enhanced by the injection of 50 cc. of 50% glucose solution, intravenously; twenty-four to forty-eight hours of such a routine usually clear the cerebral manifestations of edema.

Many of the intracranial symptoms found following mastoid, accessory air sinus disease, and upper respiratory tract infection are due to extension of the infection into the cranial cavity. Frequently it has been carried in by an ill advised operation, and cerebral symptoms supervene.

The extension of infection within the cranial cavity is a serious problem which confronts us all. Extradrual abscess should be carefully opened and drained, but too frequently, injury to the dura is produced by the operation at the time of an exploration, especially if the abscess lies above the temporal bone in the middle fossa. It is most desirable to drain such a collection through the mastoid or through the original point of the source of entry, and hence if possible, avoid advancing through a new field.

In those infections which have reached the substances of the brain, without a generalized meningeal involvement, it is far better to await the proper period for opening the abscess, than to attempt it as soon as the diagnosis has been made. Brain abscesses are drainable only after they have been completely walled off, and become liquified. No relief will be obtained in opening the skull, or attempting to drain an intramedullary abscess which has not reached the encapsulated stage. Such procedures only disseminate the infection, and frequently produce a meningitis which Nature had averted. The best results obtained today have been in those cases where long periods of time have been permitted to elapse, before the abscess has been evacuated. Carefully watching the patient day by day and week by week, with the knowledge that a brain abscess is present, is indeed a trying procedure, but with the above methods for controlling intracranial pressure, and by noting the signs of general cerebral compression, such delay is the wisest and most frequently beneficial method of treatment.

When exploration is decided upon, the abscess should be reached through as small an opening as possible, and should be completely unroofed after sealing off the subarachnoid spaces about the intended area of evacuation. This can be accomplished by making the necessary trephine on one day, opening the dura and placing gauze packing between the dura and arachnoid around the edges of the wound, leaving the packing in place for twenty-four to thirty-six hours. Following this, adhesions of the arachnoid will help to prevent the spread and infection which the opening and draining of the abscess may invite.

Two fundamental principles are involved in the management of brain abscess: (1) complete drainage of the source of infection should precede any attempt at opening the cranial cavity or draining of the brain abscess. (2) Delay, to the point where the patient's symptoms

indicate the final intracranial pressure picture, similar to that seen in brain tumors.

These signs are not present in the early stages and must be distinguished from the signs of general cerebral edema. The early treatment should be directed toward dehydration, and the prevention of cerebral edema. The interval between recognition and drainage should be characterized by palliative means, and when in spite of dehydration the focal and pressure signs indicate a definite localization of the process, or a terminal reappearance of cerebral edema, the operative procedure may be indicated and then undertaken.

Treatment of brain abscess in the past was not successful, as it was felt to be an emergency procedure. The brain is slow to react to infection within its substance, the walling off frequently takes weeks, and there is slow necrosis of the cavity. The problem is similar to opening a carbuncle of the neck in the early stages of tissue inflammation. The results obtained from the standpoint of drainage at this stage are nil, and the possibility of dissemination of the infection, greatly enhanced.

SUMMARY

In the above considerations as they apply to the oto-laryngo ophthalmologist, lie some of their problems attended with serious complications. As indicated in the early part of this paper, the specific factors regarding technic or methods of management are too numerous to analyze. The general principles upon which serious secondary cerebral complications are based, have been indicated, and too much stress cannot be placed upon the physician's definite knowledge of amounts of fluid ingested and eliminated by the patient prior to operation, so as to prevent the predisposition to cerebral edema. Thus by maintaining an intake and output record, with the daily weight of the patient, one has the information regarding fluid and storage. It is evident that if the patient is receiving forty to sixty ounces of liquid, plus that in the diet, and passes twenty to thirty ounces through the kidneys, the balance must be accounted for. As sixteen ounces are approximately one pound, the weight of the patient will determine whether or not water storage has occurred, or whether the skin, breath or bowels have compensated for the unreclaimed balance. Where toxinemia exists and temperature is increased, not only is the renal mechanism deficient in its fluid output, but the dry skin indicates little loss of fluids from this usual avenue of evaporation. Under these conditions, water storage frequently occurs and the physician who is not cognizant of this fact, predisposes the patient to a cerebral edema, by the forcing of fluids, thus precipitating unnecessary complications which are entirely foreign to the intended procedure.

General anesthesia, especially ether, temporarily increases intracranial pressure, and this, in the presence of venous obstruction, due to thymic enlargement, neck swellings, tumors, venous anomalies or other deficiencies, will place a greater load upon the cerebral circulation in one case than in another. Nature cannot usually compensate for a renal and cerebrospinal fluid deficiency combined, and thus serious complications may ensue.

With due regard to the factors surrounding blood pressure and oxygen *available* to the *brain cells,* utilizing the methods of dehydration and cerebrospinal fluid control, as has been indicated above, many cases giving rise to serious cerebral symptoms may be safely carried through a crises which formerly was promptly terminated in a catastrophe, by disregard of these principles following the almost traditional beliefs for the need of administration of large quantities of fluid.

That fluids in sufficient quantities are required, is evident, but that quantities of fluid should be administered beyond the capacity of the patient to properly eliminate or balance these fluids, or properly distribute the fluid collections, particularly within the craniovertebral cavity, is beyond comprehension.

The intelligence of an individual would be seriously questioned if he permitted the inlet flow to his bath-tub to remain unchecked, in the presence of a deficient drainage system, as the consequent overflowing would not be long in occurring. That such a condition applies equally to a human body is not hard to grasp, and thus those water faddists, who advocate increasing the fluid intake "to wash out the poison," frequently also wash away the patient, by their oversight of the fact that water does not mysteriously disappear from the body, but has known avenues for elimination. When these are deficient, the intelligent physician will regulate the ingestion of fluids in such a way that Nature can continue her battle for the recovery of the patient, without a double handicap.

In the middle ground of rational medicine lies the needed services of the physician to determine the proper values for fluid ingestion, in the presence of what is now known regarding water metabolism, and the deficiencies which arise from many pathological conditions. The intelligent physician will not deny the patient fluids, when they are needed, because of some formula advocated for dehydration, neither will he overload his patient with fluids, because of some fad regarding large fluid consumption.

Surrounding the proper balance of fluids in the individual during health and disease, lies one of the greatest problems in medicine today.

Chairman Lilly: In behalf of the Section, I wish to thank Dr. Fay for coming to us today and for bringing this splendid paper.

We shall now have the papers of Dr. Taylor and Dr. Peery, after which discussion of this group of papers will be in order.

NON-TRAUMATIC CEREBROSPINAL RHINORRHEA

Report of a Case with Postmortem Findings

Shahane R. Taylor, M.D., F.A.C.S., Greensboro

Mrs. R. W., a white female, aged 50, presented herself February, 1928, complaining of a continuous discharge from the left nostril of 8 years duration.

The F. H. was irrelevant. There were three living, healthy children, no miscarriages.

The P. H. was negative except for mumps and measles in childhood, uncomplicated influenza in 1920, and occasional mild headaches.

P. I.: The discharge of fluid from the left nostril, first noted in 1920, was for a time intermittent, but since 1921 had been constant. The discharge consisted of a clear fluid, which dropped continuously from the left nostril.

There was no history of trauma or infection associated with the onset. The discharge was so profuse that the patient was unable to sleep on her back because of the flow of fluid into her throat.

Some disturbance of vision had been present for about 3 years. This was described as a haziness and blurring of vision, intermittent in character and not relieved by repeated refraction.

A mild headache was present at infrequent intervals for several years.

Vertigo, nausea, vomiting, convulsions, psychic disturbances, and paresthesias were absent as were polyuria and polydypsia.

The weight remained at about 200 pounds for the last 10 years.

The physical examination was entirely negative, except for the local findings. With the head in antiflexion there was a continuous dropping of clear fluid from the left nostril. It was impossible to determine the exact point at which the fluid entered the nose. There was no evidence of sinus infection.

The pupils reacted promptly to light and accommodation and the ocular movements were normally performed. Examination of the fundus oculi was negative. Charting of the visual fields disclosed a slight but definite concentric contraction for form and color and bilateral enlargement of the blind spot. Central vision remained normal, the patient being able to read 20/20 with either eye after correction for her hyperopia and astigmatism.

The hearing was normal in both ears. Cranial nerve paralysis was absent and the sense of smell was unimpaired.

The Wasserman reactions of the blood and spinal were negative. Examination of the fluid from the left nostril disclosed a clear, colorless liquid with 4 cells per cubic millimeter and a normal globulin and sugar content for spinal fluid.

X-ray examination disclosed normal sinuses and a sella turcica, which appeared to be enlarged in the antero-posterior and vertical diameters. Erosion of the anterior and posterior clinoid processes was clearly evident as well as a suggestive thinning of the anterior wall of the sella.

In spite of the atypical visual fields, the clinical impression at this time was a pituitary tumor with erosion of the sella turcica into the left sphenoid sinus, permitting the escape of cerebrospinal fluid; and that in this case the sphenoid sinus acted as a barrier to infection between the meninges and the nose. This explained to our satisfaction the long duration of a lesion ordinarily more rapidly fatal.

The patient pursued an uneventful course for 3 years. During this time she contracted an occasional cold and once a severe attack of influenza, with perfect recovery in each instance.

February 12, 1931, the patient awoke with a slight headache and noted that the rhinorrhea had ceased. The headache became progressively worse, the temperature rose, and within 5 hours the patient was unconscious. Lumbar puncture confirmed the diagnosis of an acute suppurative meningitis. This progressed rapidly to a fatal termination.

Permission was secured for examination of the cranial contents and for the removal of a pituitary tumor if present. The menniges and brain presented the typical gross appearance of an acute pneumococcic meningitis. The sella turcica was buried under a mantle of greenish pus. From the distribution of the exudate it appeared that the portal of entry was by way of the sella. This structure was removed in toto with the pituitary intact.

After the specimen had been hardened in formalin it was carefully dissected. The sella was enlarged in all dimensions. The anterior and posterior clinoid processes were eroded. The ordinarily solid pituitary body was represented by a hollow, cup-like structure from the bottom of which the infundibulum projected. There was neither erosion of the floor of the sella nor any evidence of an opening into the sphenoid. Microscopically, the pituitary presented no evidence of hyperplasia.

Our diagnosis then of course had to be revised. The most logical explanation to me is as follows:

1. That there was an increased intracranial fluid pressure of unknown etiology.
2. That cystic dilatation of the pituitary and enlargement of the sella were produced by transmission of this pressure. This phenomenon is well known to neuro-surgeons and has often been found associated with posterior fossa tumors.
3. That the escape of cerebrospinal fluid into the nose was probably by way of the dural sheath of an olfactory nerve and not through the sphenoid.
4. That the visual fields so typical of pituitary tumor were produced by a downward displacement of the structures in the region of the pituitary with a consequent pressure on the optic nerves.

This case has been extremely interesting to me and emphasizes several important points. 1. A cerebrospinal rhinorrhea may persist for years before a fatal termination. 2. An enlarged sella and erosion of the clinoid processes are not conclusive evidences of a pituitary tumor. 3. That careful perimetry and correct interpretation of the findings are of paramount importance. 4. That postmortems must be complete to be of real value.

Had we been able to keep and carefully study the entire brain, in all probability we would have succeeded in demonstrating the underlying pathology in this case.

SOME INTRACRANIAL INFECTIONS OF AURAL AND NASAL ORIGIN

Vance Price Peery, M.D., F.A.C.S., Kinston

The presence of infection inside the cranial cavity, which has extended from the sinuses or ears, is frequently not suspected or recognized even when there is an evident focus. The tendency to overlook a running ear, or a discoverable focus in some other locality, in cases with or without pronounced signs referable to the cranial contents, has accounted for much misdirected therapy, irreparable disability, and even fatality.

The cranial contents have an unusual ability to accommodate in the face of changing conditions. Today there may be signs which a medical student or nurse would regognize. Tomorrow they may be not so pronounced, or even absent—only to return again. Attention to detail and minute observation, however, if persisted in, will always afford a lead when there is something happening inside the skull.

The old textbook picture of choked disc, slow pulse, projectile vomiting, and headache, with outstanding motor or sensory changes, is perhaps still a factor in failures to suspect brain abscess. I have never seen a case with all these signs present at once, and my attitude toward the question is now simply this: given a case with any of the following signs—headache, convulsions, motor or sensory changes, or any signs of cerebral oedema, compression, coma, mental and pulse changes, etc., and a known focus—it is my duty to suspect an intracranial extension, and my job and my consultants' job to disprove that theory. Disregarding a running ear or sinus infection in cases offering unusual diagnostic problems has lead many reputable clinicians in the wrong direction.

In 1917 I saw a man 34 years old, who had been an active farmer with no complaints until 8 weeks prior to hospitalization. In that time he had been treated for malaria, typhoid, and influenza. Severe headaches had been a prominent symptom at onset, but at the time of his admission to the hospital they were not. His chief complaint was weakness, with loss of appetite, loss of vision, unable to stand or walk alone. There were no outstanding signs of cerebral compression except choked disc and headache, which was not severe, but more or less constant. A chill, coma, and exitus. Postmortem showed a huge tempora sphenoidal lobe abscess, which had ruptured, causing meningitis. An overlooked polyp in the right ear, and a history of a running ear for 15 years, evidently considered unimportant by the patient, his family, and the doctors, tells the story as we look back.

This happened before the days of modern neuro-surgery, but it can still happen unless one is ever on the alert to take into account a focus in the ear or sinus, or even more remote foci, such as bronchiectasis, carbuncles, boils, etc.

The largest percentage of brain abscesses of aural origin are located in the tempora sphenoidal lobe. They represent infection traveling by way of dehesence in the roof of the middle ear or antrum, or the retrograde thrombe phlebitis.

Perhaps the second largest class of abscesses of aural origin is that in which the infection spreads via the internal auditory canal to the posterior fossa or other preformed ways to the cerebellum.

A young white woman, 19 years old, came to the hospital late at night, after having had myringtomy elsewhere that day. Her history showed severe earaches of 9 days duration, headache for 3 days, temperature 102, pulse 72, respiration 18, W. B. C. 13,900, R. B. C. 4,890,000, hgb. 88%, urine negative, Wassermann negative. Right ear was discharging sero-sanguinous fluid. There was no marked tenderness over the mastoid. X-ray showed large well developed mastoids, with no air in the right side. The areas around antrum showed bony destruction. Sinuses were negative. Eyes showed no nystagmus. Pupils equally reacted to light and accommodation. The grounds showed a blurring of the edges of the disc. Fullness of veins appeared as a beginning or early choked disc. Other cranial nerves were negative, except the eighth. Deaf in right ear. There was no appreciable difference in motor or sensory function, but the reflexes were hyperactive, more pronouncedly so on the right side. Vomited for the first time during the examination. Positive Rhomberg, swayed to back and right. Spinal puncture; clear fluid, 22 hg, mm, negative Quickenstedt, positive globulin 15 cells per c. m., no organisms in smear or culture ectomy. Mastoid under local disclosed advanced pathology. The sinus was placed backward, affording a large angle. The inner plate back and below antrum was necrosed, exposing discolored dura. This was incised, presenting a small area of swollen brain. A ventricle needle introduced allowed thin whittish pus to escape under pressure, Oz. 1, estimated. The head was turned to one side to facilitate emptying. A drain of rubber tissue was easily inserted. The patient appeared much better next day, and for the two days following, but in spite of glucose every 4 hours and spinal punctures, chill and signs of compression appeared and the patient died on the fourth postoperative day. Culture from the mastoid and abscess showed strep in short chains. Postmortem was denied. I believe death due to a spreading encephelitis, or possibly to metestatic abscess in the other side.

A girl 8 years old was admitted with high fever, W. B. C. 22,800, due to pneumonia. There was right-sided paralysis. She was unconscious, vomiting, dehydrated, a picture of a terminal event. There was a dilated left pupil, and fullness of the retinal veins. The reflexes on both sides were increased, there was a positive right plantar reflex, and marked increase in knee and ankle reflexes. X-ray was positive for a double mastoid. Spinal pressure was 18 hg. negative Quickenstedt, clear fluid, 8 cells c.m., and reduced copper. No organisms in smear or culture.

After blood transfusion by direct method, a left mastoid was done under local. I searched for a lead in the form of bone nocrosis, or thrombotic vessels, but found none. A left sub-temporal decompression was done through a clean area. 35 cc. of glucose 50% was given, and a spinal puncture done before incising the dura, which was under marked tension. A large quantity of fluid was released. The brain still appeared oedematous, and pulsated very feebly. Through the top of a broad convolution a ventricle needle was inserted into the temporal lobe. Upon the third attempt a gush of fluid with necrotic material was obtained. A rubber tissue was inserted by the side of the needle and left in. The brain now pulsated freely. The usual closure in layers was made, with drain at lower part, and dura not sutured. The right mastoid was done, finding extensive pathology, as in the left. Frequent spinal punctures, intravenous glucose, and blood transfusion were given postoperatively.

The patient began moving arm, leg, and side of face, and showing signs of regaining consciousness within 6 hours, postoperatively. She was discharged in 4 weeks with only a slight impediment in speech. Her culture showed pneumococcus. It has now been 16 months since operation. The child is in school, her speech has cleared up, and there are no residual motor, sensory, or mental symptoms.

The blood transfusion we would have hesitated to give in the face of an extensive pneumonia, but while Dr. Mangum reported all the physical signs of a pneumonic process in the right lung, and X-ray showed a definite infiltration in the lower part of the upper lobe, we felt that this was a pneumonitis which was being fed by a focus in the upper respiratory tract, and which in most cases clears up upon eradication of such a focus. We have seen that happen in adults as well as in children.

These 3 cases represent intra and extra cerebral suppurations. They carry a high mortality. Some case reports are not clear in locating intracranial suppuration. Extradural suppurations, which are nearly always adjacent to focus and are generally discoverable with the curette, are easily handled and present no particular problems. The dura is one of our greatest barriers to infection, next to bone, in fact. I have had 8 extradural abscesses—1 bilateral, in a 13 months old baby, who also had a pneumonitis and nephritis. These cases have all recovered with operation under local, repeated glucose, and spinal punctures.

Meningitis, streptococcal and pneumococcal, after it spreads defies us to an even greater degree than brain abscess. It is reasonable to assume that if all cases could be diagnosed early enough drainage would be an answer. Before the day of Weed's experiments pointing out the direction of flow of the cerebro-spinal fluid, from its origin in the choroid plexus through iter to the basal cisterns, then forward and upward over the fronto parietal areas, I can hardly see how one could do even worthwhile experimental work, much less treat meningitis. Experimentally Kolmer's (1) work with animal appears most impressive, viz., irrigation from the frontal regions to

the basal cistern. My experience would lead me to believe that the drainage in the frontal area in the direct path of the flow is the big factor rather than medication. However, his recent work of carotid injections appears promising as a logical way of delivering serums and medicines to the meninges. Medical history tells us that practically all cases of generalized streptococcic and pneumococcic meningitis die. We are therefore justified in employing any measures based upon principles which might offer any hope whatever in such cases.

Recently a 7 year old girl was admitted to my service with a chief complaint of restlessness, fever, vomiting, and running ears, and a history of scarlet fever and measles 7 weeks prior to admission, at which time she had suffered acutely with her ears for 48 hours. When they began to discharge the pain was relieved and the child seemed to improve slightly until 3 days before admission. It was noted that a definite change had taken place, with extreme restlessness alternating with hypersomnia, crying out at intervals, and vomiting. There was no retraction of the neck. Upon admission the knee and ankle reflexes were hyperactive, motor and sensory functions were equal, pupils were dilated, and a lateral nystagmus was present. There were no local convulsive movements, and no other localizing signs. General examination by Dr. Mangum was negative except for signs referable to central nervous system. W.B.C. of 24,000. Spinal puncture yielded cloudy fluid, which was filled with pus cells, and pressure was 32 m.m.hg. Pneumococus was identified in smear of fluid. X-ray of both mastoids showed definite pathology. The left, however, was well developed for age, while the right was small and appeared sclerotic. She was matched for transfusion.

The hopeless situation was explained to the family, and cranial drainage explained and accepted. Glucose was given, and a left mastoidectomy was done. No opening into the middle fossa was found. A subtemporal decompression was done through a clean area. The arachnoid and pia were markedly congested, and the brain was swollen. There was thick greenish deposit of pus in sulci and along the supra cortical vessels. A rubber tissue drain was inserted in the floor of the middle fossa. Blood was given the patient, and she rested quietly and appeared better for 24 hours, when pressure signs required frequent glucose and spinal punctures. The patient expired on the third postoperative day. Postmortem disclosed the deposit of greenish pus all over the fronta parietal areas on both sides. The meninges were congested, but there was no pus over the occipital lobes nor over the upper cortex of the cerebellum. The basal cisterns and ventricles did show pus and exudate. But the whole process was more marked on the left side. The brain had a bulging prominence at the operative site, with rupture of the pia and cortex, evidently from extreme pressure. The tip of the left temporal lobe showed extreme necrosis. I could make out no signs of any localizing barrier around a small opening in the tegnum antro

noted from above. I made an effort to obtain some ethylhydrocupien to use according to Kolmer, but there was no available local supply.

This case died from toxemia from virulent meningeal infection and cerebral pressure. I think, of course, the spreading infection was the big factor as it caused the oedema, swelling, and pressure, but intracranial pressure is a much more important thing than is commonly realized. The work of Dr. Temple Fay and his associates on epilepsy, and the application of the principles of his unyielding water cast over the cerebral cortex, is applicable to any condition where the circulating pathways of the spinal fluid may be blocked or retarded. Intracranial pressure must be taken into account and even empirically combated, because that alone can be fatal. 50% glucose, mag. sulph., or hypertonic saline has on numerous occasions in my experience changed a picture of deep coma, irregular respiration and pulse, or impending death, to one of more hopeful aspect, and even recovery. Over 10 years ago Kopotsky and Haynes in reporting their cisterna magna operations were able to note a decided change for the better in their lepto meningitis cases—temporary, it is true. But that is something. Some other factor will be worked out and in time perfected so as to insure the holding of this gain after drainage.

A boy 7 years old came in with a supposed pneumonia of the so-called cerebral type. He was delirious, and had two running ears. Urine was negative, leucocytosis present. X-ray showed a double mastoid, with evident bony destruction. Spinal puncture showed high pressure, about 22, clear fluid, 6 cells, negative globulin, no growth on culture. The child quieted down after pressure was reduced to 14, and a double mastoid under local. He seemed better for 5 days, when he became wild, with hyperactive reflexes and positive Kernig. Right pupil was dilated, and he was extremely tender over squama above the right ear. The old wound was reopened on the right side and everything appeared to be granulating well. A small trephine opening was made in skull over the ear and the dura incised, allowing a gush of thin whitish pus to escape. We had gone into a localized meningitis, which drained, and the patient made an excellent recovery. As Eagleton (2) has stressed, drainage of a localized meningitis, wherever it is, plus eradication of focus, offers a hopeful prognosis.

A young man 20 years old was seen in consultation. He had been ill for 11 days, and had been treated for influenza, with severe headache, when vomiting, restlessness, and semi-coma supervened. Reflexes were hyperactive. There were no eye ground changes, except possible fullness of veins. There was tenderness over the right frontal. No nasal discharge. W.b.c. 28,000. X-ray showed a positive right frontal. Spinal puncture showed cloudy fluid, with numerous pus cells, and strep demonstrated in a smear of fluid, and pressure 26 m.m. murcury. Pressure was reduced to 14. An external frontal with incision of the thickened congested dura was made, and a drain was placed. Glucose and spinal drainage were repeated. The patient was better for 3 days, when uncontrollable

cerebral pressure signs appeared, followed by a deep coma, and death on the fourth postoperative day.

There is no measure of which I know, that has been used in these cases, which definitely combats pressure, which will fail to favorably affect for a time the course of the infection. Cranial drainage; spinal or cisternal puncture; continuous spinal drainage by lamennectomy, hypertonic solutions, etc.; Eagleton's ligation of the internal carotid, which he feels affords rest and prevents the continuous pounding of the blood current against the inflamed part, but which possibly has as its chief virtue the reduced pressure it affords. All these measures help some and carry along just so far, but there is yet something lacking. Now, if we all record our observations, reporting our failures as willingly as we do our successes, the sum total will assist materially in solving the problems of meningitis, or at least in reducing mortality to an appreciable extent.

The diagnosis of an intracranial lesion will in some cases defy the ability of the best clinicians, and in many instances the presence of a known focus will prove to be most valuable. As to localization, which is all-important for a surgical attack, we are indebted mostly to neuro-surgery, for the advances made by neuro-surgery, which is still a youngster in point of years, has assisted greatly in placing emphasis upon definite signs and symptoms. For instance, repeated taking of fields as stressed by neuro-surgeons, may be the one factor to lead one to the middle fossa to explain a certain field defect. A sharply demarcated homonymous hemianopsis points to occipital lobe. The cranial nerve involvement is perhaps most help in the case of the 3rd, the 5th, the 6th, the 7th, and the 8th. Third involvement is evidence of a lesion on the same side. The 6th helps in petrosal tip suppurations. The 7th with other motor signs points towards the opposite side in the precentral area. The 8th, if known to be functioning prior to that time, would be of assistance in assuring a posterior fossa location. Testing the sensibility of the vestibular branch with hot and cold irrigations, as well as stimulation of the internal canals by turning with the head in appropriate position, can be of assistance in separating a posterior fossa lesion from other locations. But in some cases turning cannot be done and the responses can be affected by the general pressure effects of a lesion elsewhere. If there is no internal hydrocephelus the Barany test may be of inestimable value.

The contra-lateral motor or sensory paralysis of the face, arm, and leg, and aphasia in the case of a right-handed patient with a left running ear, would be sufficient evidence for almost any one to localize a lesion on the left side of the brain, and noting the sequence of involvement would allow one to visualize the size of the area. But the cases with general signs and a paucity of localizing signs will require all the knowledge and experience of otology and make imperative the assistance and experience of neuro-surgery for proper diagnosis and treatment.

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DISCUSSION

THE CHAIRMAN: We will now have discussion of the last three papers by Drs. Smith, Fay and Peery.

DR. V. K. HART, Charlotte: I can recall two of our patients in the last two years who developed every sign of increased intracranial pressure with frank choking of the discs following mastoid infections. In each case the wound was reopened and decompression was done. It was long enough postoperatively to have allowed walling off. A small incision was made in the dura and search made for the abscess in the area of the temporal lobe, cerebellar symptoms being absent. In both of these cases we failed to find any abscess. Both got well. I am convinced that there was some other factor, perhaps an anomaly in the venous sinuses as suggested by Dr. Fay. If I had anything to do with those two cases again my procedure would be very different. Those patients would immediately receive the definite limitation of fluid intake that Dr. Fay recommended, and fifty cc. of glucose intravenously, or proportionate dose if a child, and would be observed until we were warranted in entering the clean dural cavity. I feel, looking back, that we were extremely fortunate, although of course, very rigid precautions were observed.

Another interesting thing to me is status lymphaticus. You see a child with a large thymus and are forced to do a tracheotomy, although you do not want to do it. I have seen a case that, even with a tracheal cannula in situ, three or four times all but died. We would rush him to the operating room and drop adrenalin directly into the cannula. We always felt there was something else to explain those attacks. If the child continues to have those attacks before the X-ray therapy has time to take effect, it may be the child has jugular compression, as Dr. Fay suggests. It is easy to see why we get fatalities and get them very quickly. Vagotonia with spasm of the bronchi may also be a factor.

I think often we do not pay enough attention to our ear examinations. I remember one case Dr. Smith presented of a woman who had attacks of staggering, a woman in whom a tumor of the corpora quadrigeminae was subsequently found and who had perfectly normal cochlear and vestibular findings. In my record, otologically, she had no evidence of tumor of the posterior fossa. We thought it was probably some disturbance secondary to her eye dysfunction. The later findings justified the ear opinion.

Since I was abroad last year and saw the methods of examination in Vienna I have felt their so-called minimal investigation is well worth while. If you use the old methods and spend two or three hours examining a patient, if the patient has anywhere near normal laby-

rinth reaction you will have a sick, disgusted patient who will never come back to you. If you take five to eight cc. of ordinary tap water you can examine that patient in half an hour, getting nystagmus fifteen to thirty seconds and lasting sixty to a hundred and twenty seconds. Why subject a patient to such a long examination if you can avoid it?

I believe thoroughly in conservatism in treatment of brain abscess. I recall one patient who came in with a cell count of ten thousand, so far as we could make a count. I waited, doing what I could to reduce intracranial pressure. I felt sure it was an abscess of the temporal area. It came on several weeks following a mastoid operation. Later, the whole clinical picture became less severe, definite localizing signs appeared, and an abscess of the temporosphenoidal area successfully drained, the patient making a complete recovery. Had I operated this patient early before definite walling off, I most certainly would have had a fatality.

I have thoroughly enjoyed all these papers and feel I have gotten a great deal that is worth while.

Dr. Deryl Hart, Durham: I have been intensely interested in and have learned much from the papers read here this afternoon. Dr. Fay's observations on the venous drainage of the cranial cavity are particularly interesting. On performing the Queckenstedt test there is usually little response to compressing only one jugular vein, while compression on both gives a great increase in intracranial pressure. Occasionally compression of one jugular alone gives little or no response, while compression of the other jugular alone gives as great a rise in pressure as is ordinarily obtained on compression of both jugulars. This, I think, is explained by an old thrombosis or more frequently by the anatomical arrangement of the sinuses as given by Dr. Fay.

I would like to ask Dr. Fay if he notices any tendency for convulsions to be grouped at certain times of the day or night? There is a very definite variation in the rate of formation of cerebrospinal fluid. Where the cerebrospinal fluid system is drained in the absence of infection, it has been repeatedly noticed that from about 7 to 11 in the morning and evening there is a great increase in the rate of output, while from 1 to 4 in the morning and afternoon, the output may almost stop. This fluctuation is apparently not dependent on variations in the amount of fluid intake. I would like to know if the number and severity of convulsions are greater at these times of increased formation of cerebrospinal fluid?

In regard to draining the cerebrospinal system in the presence of infection, that is for the treatment of meningitis, my experience in approximately fifty cases has been most discouraging. They never drain for more than 6 to 18 hours, at the end of which time the cerebellum has not only filled the cisterna magna, but has herniated down the tube as far as two or three centimeters. This is to be expected when we consider the extensive ramifications of the subarachnoid space, the thickness of the exudate, and the fact that the infection, infiltration and oedema is in the brain substance. The rising pressure

due to the oedema forces the fluid out of every possible space and then forces the soft brain out into the drainage tract. The most satisfactory drainage in my hands has been through a lumbar puncture needle left in place for several hours at a time, the punctures being frequently repeated. A small sterile tube can be fastened over the head of the needle to carry the fluid to the drainage bottle and prevent secondary infection of the spinal canal. We had one patient with a pneumococcus meningitis who was treated by drainage, serum, and optochin. The spinal fluid was sterile and the patient had a normal temperature for several days on two occasions, but death finally ensued. Autopsy showed thick exudate over both frontal lobes where the subarachnoid spaces are small and drainage poor. These areas apparently acted as foci which reinfected the remainder of the space.

I want to thank Dr. Fay and the others for the very enlightening papers which we have heard on intracranial conditions.

Dr. F. R. Taylor, High Point: There is one thing I should like to ask. In some of these cases of injury to the head ordinarily spoken of as concussion, with unconsciousness for perhaps five or ten minutes and no further symptoms except persisting headache for weeks or months, perhaps not constant, but coming on every day and sometimes at night, and existing for the majority of the twenty-four hours of the day with nervous irritability; if you cannot demonstrate any neurological changes and the X-ray findings are negative, etc.; is that likely to be due to excessive pressure of cerebrospinal fluid, and is limitation of the fluid intake likely to relieve the condition? If so, how long should it be kept up?

Dr. Casper Jennings, Greensboro: I should like to ask Dr. Fay whether or not he has found that limitation of fluids would make any difference in the frequency of attacks of migraine and also whether he feels that, in attacks of migraine, there is a transitory increased intracranial pressure. Migraine is one of the most annoying minor ailments we have, and I should like to get his opinion about these things.

Dr. Peery, closing the discussion: My excuse for giving this experience, is bringing the question before the section. I believe we learn much by talking about our failures, as well as our successful cases.

Dr. Smith's paper represents excellent work. On several occasions I have heard Wells P. Eagleton say, that he relies upon Perimetry more than anything else in localizing lesions in some cases. As Dr. Smith has shown, Perimetry is definite in its information in many cases.

The interesting information Dr. Fay has given us today cannot better be expressed than has been by Dr. Barrus, when he said "it works down on the farm." Being in Dr. Fay's clinic each day during the last meeting of The American College of Surgeons, I had the opportunity to talk with many of his patients, who had been properly balanced, and they told me that they could detect the difference in the way they felt, if they allowed their intake of fluids to exceed their

limit, such as for instance feeling sluggish, mentally and physically, and even had convulsion if they drank enough. Several who had grown accustomed to their balanced fluids, and limit, expressed a genuine desire to remain within strict limits as fixed, because they felt better and could do more and better work.

Dr. Fay's work has impressed eminent men as well. I remember what Dr. Spiller said on the occasion of discussing one of Dr. Fay's early reports on hydrated states, "This is a tremendously important piece of work."

POSTNASAL DISCHARGE

Dr. W. W. Eagle, Durham

By the term postnasal discharge, I have designated any collection of mucous or purulent discharge that collects in the upper air passages and either remains there or passes into the pharynx. We are all familiar with the very common complaint of postnasal discharge, which may be expressed by the patient under various terms. Some of these patients have had the discharge for quite a long time, and can point out certain factors favoring or increasing their conditions, which may be very helpful in reaching a diagnosis. Others may have had symptoms for only a short period of time and may also be able to give a clue as to the causative factor or factors. However, there are some of both of these groups, together with the so-termed acute cases that can give no clue whatever as to the etiology. This latter group of patients is the most difficult to deal with, not only from the diagnostic standpoint, but from the therapeutic viewpoint.

The symptoms of some of these patients are seasonal, others occupational, others thermal, others nutritional, hygienic, constitutional, or some may be due to anatomic deformities, or actual pathology—with or without actual infection. We have been accustomed to attribute most of the causes of postnasal discharge to the common disorders, such as coryza, acute or chronic sinus infection, septal deviations or spurs, hypertrophic and atrophic rhinitis, allergic reactions, and adenoids. Recently, there has been considerable literature on investigations relative to the part played by lack of vitamins and endocrine disturbances. There seems to be little doubt that some of our most obstinate cases fall under this latter group. At the present time, the investigation is still in its infancy, but at least it is well to remember these conditions as a possibility, in order to properly diagnose and treat these cases.

Postnasal discharge may or may not be accompanied by headache and the positive history of headache is not always an aid in reaching a diagnosis. Fever is rather a rare finding accompanying postnasal discharge except when there is some virulent acute intra-nasal infection, such as dyphtheria. Obstructed breathing spaces are not always found even with the most profuse discharge, as I am sure all of us are familiar with cases where adequate breathing spaces are found with no septal spurs or deviations to obstruct a view; where there is a large nasopharynx and a profuse foamy mucoid discharge covering

the entire nasopharyngeal cavity. In the above group of cases, the adenoids have frequently been removed at the same time tonsillectomy was performed, but the symptoms continued unabated.

Patients with a chronic discharge are very prone to gastro-intestinal complaints. They are frequently found to be nervous, irritable, and below their normal weight and their normal state of nutrition. It is not necessary to call to your attention the frequency of complaint of discharge postnasally by neurotic patients, especially those with the true gastro-intestinal symptoms. Cough, insomnia, bronchitis, impaired hearing and tinnitus, are the other more or less common complications of a chronic discharge.

Since all medical ailments can be properly treated only when a true diagnosis is made, it is very essential that patients with a postnasal discharge of doubtful or obscure etiology be referred to an internist for a thorough medical review. At least, this is indicated previous to any surgical or other radical treatment being instituted. Under such circumstances, some of our submucous resections, removal of septal spurs, partial turbinectomies, etc., will be found unnecessary. The diet, endocrine unbalance, hygienic situation, and occupational disorders, can be corrected by the internist.

As to treatment: submucous resections and removal of septal spurs should always be done where indicated and they give good results. Removal of nasal polyps is not a cure unless all sinuses from which they arise are thoroughly denuded of their entire lining membrane, and a new healthy mucosa relines the area. Removal of polypoid turbinate tissue must be complete and is probably better therapy than cauterization to prevent recurrences. It is important, however, to always bear in mind to remove only the tissue actually diseased, as removal of too much turbinate tissue will cause the patient to complain of a dry nose. Adenoidectomy is very frequently found necessary and is best done under ether anaesthesia. The inability to properly remove the adenoids is one of the outstanding objections to local anaesthesia tonsillectomies. Occasionally, cases are encountered where a series of small deep X-ray treatments or radium emanations are indicated. They are especially useful when there is a reddened granular appearance of the naso-pharyngeal mucosa, with or without isolated follicular hypertrophy. For coryza and other acute congestive nasal conditions, a 1% aqua solution of ephedrine sulphate is excellent. For most of the chronic conditions ephedrine is of very little assistance. Chronic hypersecretion of the mucous glands is corrected usually by a mild, bland mixture containing menthol, chloretone, eucalyptus, camphor, and other preparations. Nasal douches cannot do much more than cleanse the surface of the nose, since antiseptics which are strong enough for penetration to kill organisms below the surface will injure the mucosa.

For the selected cases of discharge due to allergy, whatever diseased tissue is found should be removed and adequate breathing spaces provided. The cases can then successfully be treated by the internist. The cases due to dietary disturbances seem to require little or no surgery and also are successfully treated by the internist.

DISCUSSION

Dr. Vance P. Peery, Kinston: Dr. Eagle mentioned referring some of the cases with gastro intestinal symptoms to the internist. I desire to mention one of the things which disparages surgery and otolaryngology, incomplete study. While Dr. L. W. Dean made the statement before the Academy of Otolaryngology in Atlantic City, that Otolaryngologists are more and more becoming internists, I would not construe that to mean that we are as yet as competent in that field as men who are internists. I feel that no major surgical procedure should be carried out on any patient without a complete study, not only of our own special problem, but a general physical survey as well, by an internist.

I have seen many cases with upper respiratory symptoms, having in addition thyroid dysfunction. The Basal Metabolic test is not as universal as it should be. I feel that my internist has been a great help to me and has on occasion kept me out of trouble. Certainly a competent internal medical man will assist us in viewing the patient as a whole.

Complete study and consultation is "patient protection."

Dr. J. N. Robertson, Fayetteville: In cases in which there is no pathology, deviated septum or sinus infection, that you can see in the nose, there are two causes I have found very common. One of them is that we have overlooked some sphenoid suppuration, which in some cases is very hard to find. The second cause, and very frequent I have found, is that may be these patients have positive Wassermanns. These have been, in my experience, the two most common causes in these obscure persistent postnasal discharges.

Dr. Eagle, closing the discussion: I was very interested in the doctor's statement about the finding of positive Wassermanns in a number of these cases. Thinking it over, we have so many colored patients with positive Wassermanns, and, while it is not mentioned in the paper read, it is rather infrequent to have colored patients complain of postnasal discharge. It is a thing I think would be well to pay attention to, and I shall follow that out myself, because I have not followed it up from that viewpoint.

Another thing. If you give a series of X-ray treatments, or; one, or sometimes two radium emanations, their symptoms disappear. I just wanted to bring that up again.

COCAINE POISONING—ITS PREVENTION AND TREATMENT

B. W. Fassett, M.D., Durham

With over twenty years experience in the use of cocaine as a local anaesthetic, I have on numerous occasions observed nervous manifestations that were no doubt due to the toxic effect of the drug, but it was not until recently that I had my first case of moderately severe cocaine poisoning. After describing this case to a number of my colleagues and noting the diversity of opinion in regard to treatment advised, it seemed that "Cocaine Poisoning—Its Prevention and Treat-

ment'' would be a subject worthy of consideration by those who from choice use local anaesthesia in their practice.

The so-called cocaine group of anaesthetics includes a number of synthetics all more or less useful according to their chemical structure, anaesthetic efficiency or systemic toxicity. Of the one hundred or more synthetics only procaine, butyn, holocaine and a few others are of sufficient value to deserve an important and permanent place in local anaesthesia. The ideal local anaesthetic, completely free from systemic action does not as yet exist. Even the most popular of the synthetic local anaesthetics of the procaine type is not free from danger. Of these synthetics, some are less toxic than cocaine but none have as yet entirely supplanted it in intra-nasal surgery. Cocaine, itself a product of nature, ranks among the most powerful of the group, but with increasing experience of the margin of safety within which it can be used, poisoning is less frequent; however, nothing can alter the fact that it is a highly toxic substance and just as long as it is used as a local anaesthetic, serious accidents are liable to occur. While fatalities are not frequently reported, there is no doubt many occur that are not tabulated in medical literature. The milder forms of intoxication are often observed by rhinologists, but many of such cases are not easy to distinguish from other nervous manifestations and are easily overlooked.

The causes leading to severe reactions from local anaesthetics could well be placed in three groups. In the first group we find the cases due to accidental overdosage; the physician orders one-tenth percent solution and receives not 1/10% but ten percent; or it may be that he had in mind the use of one-fourth percent solution and through an error of his or that of an attendant a four percent solution is used. Responsible statistics bear out the statement that mistakes in dosage of a kind referred to, account for 25% of the reported fatalities. Another frequent source of error is in the injection of cocaine thinking that procaine was being used. To avoid the latter mistake, some institutions have adopted the plan of coloring all cocaine solutions.

The Council of Pharmacy of the American Medical Association, some time ago, issued a statement decrying the promiscuous use of cocaine in greater concentration than twenty percent. Reese Guttman of Chicago says: ''If cocaine mud is to be used, weigh out one grain and do not use more regardless of how poor the anaesthesia may be.

In the second group we find the toxic effect due to a mixing of anaesthetics, general and local, or the use of two or more local anaesthetics in a given operation. For instance, there is the practice by some in their local tonsil work of mopping the throat with a solution of cocaine and then injecting procaine in the tissues. This practice alone accounts for a large number of fatalities. While cocaine is absorbed slowly from the respiratory tract, it is well to remember that each drop entering the gastro-intestinal tract is rapidly absorbed and is almost the equivalent of an equal amount injected in the tissues. If it is your custom to make a topical application of cocaine in your tonsillectomies, try leaving it off in your next few cases and see if

there is any material difference either in the gagging of your patient or the completeness of the anaesthesia. The amount of novocaine to produce complete anaesthesia of the throat is practically harmless so why should we make the operation hazardous by the unnecessary application of a second anaesthetic which has decided toxic properties? Novocaine, a synthetic substitute for cocaine, is only one seventh as toxic, but when cocaine is added to a solution of novocaine, the toxicity is increased out of proportion to the amount of the former drug used.

It is generally considered that in surface anaesthesia the use of adrenalin with cocaine lessens the danger of poisoning since it contracts the vessels, slows absorption and allows more time for the excretion of the drug or its destruction within the body. If, however, cocaine is to be injected in the tissues and adrenalin is added it would be well to remember the experimental work of Dr. Ellison L. Ross of Chicago, in which he shows conclusively that adrenalin added to cocaine, except in small quantities, greatly increases its toxicity. If his observations are correct, it would seem the part of wisdom, whether using cocaine for surface anaesthesia or injection, to limit the adrenalin to the smallest possible amount. Since cocaine in toxic quantities and adrenalin in lesser quantities each have one action in common, that of contracting the blood vessels and elevating the blood pressure, I have wondered how much it has to do with the postoperative headaches that are sometimes a complaint after local anaesthesia.

In the third group of cases we find the hypersusceptible—the ones who are profoundly affected by the dosage that would be absolutely safe for the average individual. The reaction of the susceptible cannot be accurately foretold, so no matter how extensive or successful your practice or how cautious you may be with local anaesthetics, it is entirely possible that you may at some time meet with a case that will give you great anxiety and tax your resourcefulness to the limit.

The toxic effect of cocaine is manifested by an over-stimulation of the cerebral cortex and respiratory center. In severe case of poisoning, such as occur when the drug is injected directly into a vein, the symptoms follow in rapid succession and only a few seconds or minutes may elapse between the first symptom and the death of the patient, which would be due to primary cardiac failure. In the less fulminating type, the patient may suddenly become restless and apprehensive, complaining of pain when we know that none should be felt. The use of additional anaesthetic only increases the cerebral stimulation and is of no avail. The patient becomes more restless and confused; the pulse at first is rapid and strong, but later is depressed and we have syncope and cyanosis; the pupils dilate, and headache, vertigo and nausea may be noted. The breathing is quick and deep; as it becomes faster, the air inspired with each breath becomes less and less. During convulsions, the respiration is irregular or ceases, but it recovers again in the intervals. After a violent paroxysm, it fails to be reinstated. In other cases, we may have almost from the beginning, fainting and collapse; the skin becomes cold; the heart is depressed, and the breathing slow and weak. If death should occur

in either instance, it would be from respiratory failure after a period of clonic convulsions.

In describing the respiratory symptoms of the laboratory animal, Reese Guttman of Chicago, says: "The respirations are rapid and shallow, becoming irregular and ceasing after a respiratory flutter which is due to an exhaustion of the respiratory center consequent to the over-stimulation. The heart continues to beat after breathing has ceased and death may be prevented, for a time at least, by artificial respiration." The failure of the respiratory center in the stage of over-activity or excitability has been expressed as, "A jamming of the respiratory mechanism."

In poisoning from the synthetic substitutes for cocaine the initial excitement stage is absent or present only to a slight degree, but the actual causes of alarming symptoms and death are the same for all members of the group.

In the prevention and treatment of cocaine poisoning we are quite largely indebted to Dr. A. L. Tatum and his co-workers, Drs. A. J. Atkinson and K. H. Collins, all working independently but arriving at the same conclusions; namely, that in cocaine poisoning there is a failure of the respiratory center in a stage of over-activity or excitability and that a contributory factor is some influence of the brain on the respiratory center. With these conceptions in mind, they resorted to the use of hypnotics in both prevention and treatment of cocaine convulsions. By the use of sodium barbital in their animal experiments the tolerance to cocaine became three to four times as great. This high tolerance was obtained only where the hypnotic was given before the onset of convulsions. They further showed that animals in cocaine convulsions recovered if given the proper dose of barbital intravenously, but even this had its limit of usefulness; the shorter the convulsion period, the greater the chance of recovery.

In experiments carried out with the rabbit, cat, dog and donkey, it was found that the efficacy of treatment paralleled the brain development so it should follow that man, representing the highest type of mental development, would be more susceptible and responsive to this form of treatment.

As a prophylactic, the particular preparation of the drug to use is immaterial. One may use ten grains of barbital or three grains of pheno-barbital. The barbiturates such as allonal, ipral or dial, in the usual hypnotic doses, are efficacious. The sodium and potassium salts of these compounds are soluble and are therefore suitable for intravenous use. At present, I am using three to six grains of sodium amytal, one-half hour before the anaesthetic is started and find that it has the two-fold purpose of a prophylactic and excellent preoperative sedative.

In the Illinois Medical Journal for July, 1926, we find reported a series of 416 operations under local anaesthesia, in which 19% showed signs of intoxication. Later in a consecutive series of 703 cases in which pheno-barbital was administered correctly, thirty minutes before operation, not a single case of intoxication was seen. In view of these observations, as well as the observations from the

animal experiments, it is not unnatural to reach the conclusion that the barbital hypnotics are among our best possessions for the prophylaxis and treatment of cocaine poisoning.

In the management of acute poisoning, place the patient in the horizontal position and see that all manifestation of cortical stimulation or clonic convulsions are absolutely controlled by a proper dose of the hypnotic, otherwise, the cerebral stimulus from the cocaine will so effect the poisoned medullary centers as to lead to their complete failure. If the patient is in convulsion, quick measures will be necessary and one of the soluble salts suitable for intravenous use, such as sodium amytal or sodium luminal, should be properly prepared and used. The usual dose of three grains may be given and cautiously repeated, if necessary, until the convulsions are under control. If the patient stops breathing, artificial respiration should be resorted to and kept up until natural respiration is restored or so long as the heart continues to beat.

From the research experience of those quoted in this paper, and from the experience of others, atropine, chloral hydrate, ether and morphine, separately or variously combined, are not satisfactory antidotes for cocaine poisoning; either having no significant effect or actually increasing the danger. It is well to remember that if death does not occur in a few minutes, the patient almost always recovers, if not subjected to misdirected treatment.

The following cases are mentioned as illustrative of the different ways in which a toxic dose may be manifest. French of New York reports: "A girl twelve years of age met death in forty-five seconds after the injection of twelve drops of four percent cocaine solution." This was evidently a case of primary cardiac failure.

A short time ago, a New York paper carried the following news item: "Mrs. H., a young woman thirty-eight years of age, died from uraemic convulsions while on the operating table undergoing operation for the removal of tonsils under a local anaesthetic." The probable cause of the convulsions and death in the foregoing case was due to cocaine.

Dr. B. Danelius of Stockholm reports the following: "A male patient, nineteen years of age, reported in the early afternoon for tonsillectomy. The throat was painted with a ten percent solution of cocaine and ten minutes later a three-fourths percent solution of procaine and adrenalin was injected in relation to the right tonsil and a similar injection in relation to the left, with a third injection on the right side in relation to the superior pole. Immediately the patient became unconscious. Violent contractions occurred at the outset on the right side of the face. His whole body became rigid and he was lifted from the chair and placed on the floor. Respirations had completely ceased and he was cyanotic. In the body and limbs, violent clonic convulsions set in. A tongue forcep was applied and artificial respiration started at once. The heart worked with almost immeasurable frequency. The pupils, not observed at first, were later fixed and contracted. When the arms had been raised about ten times

the first spontaneous respiration occurred. Respiration, irregular at first, were soon restored."

The following case occurred quite recently in my own practice: Mrs. H., a white woman thirty years of age, reported one morning for a submucous resection of the anterior third of the nasal septum. Pledgets of cotton, moistened with four percent cocaine, were pressed dry and applied thinly to each side of the septum over the area to be operated. In a few minutes these were removed and others applied in a similar manner. Ten minutes later these were removed, then I saw that I would be delayed in starting the operation, so a third application was made and a few drops of adrenalin were added to the solution used. No prophylactic measures were taken at first, because it seemed unnecessary on account of the comparatively small area to which the anaesthetic was applied. But now that additional time was permitted for absorption, I ordered a dose of amytal and it was given about ten minutes before the operation was started. Operation was begun with the patient sitting. On making the initial incision, I noticed that the blood was very dark. The patient appeared slightly cyanosed, but as she was uncomplaining, the operation was continued although I felt that trouble was impending. She soon became restless and complained of pain when it was reasonable to suppose that none could be felt. As she was nauseated, we immediately placed her in a horizontal position. Operation was resumed but almost immediately had to be stopped. Patient was cyanotic and air hungry, rolling the head from side to side. Cardiac distress was complained of. She became still and rigid. The pupils dilated rapidly and the whole body was seized with a violent convulsion. Without delay we placed the table in the Trendelenburg position and the convulsion gradually ceased. The radial pulse was very rapid and just perceptible. Voluntary respirations continued but the patient was restless and in apparent distress. As soon as she was able to swallow, three grains of sodium amytal were given by mouth. In twenty minutes she was more comfortable, but on lowering the table, she became much worse and the Trendelenburg position was resumed. After a short wait she was able to be put to bed; she slept soundly during the day and by night seemed no worse for the experience.

One month later she returned for completion of the operation. At this visit we gave three grains of sodium amytal one-half hour before the anaesthetic was started. Cocaine was used in the same manner as before and the only difference in our technique was that the operation was done with the patient recumbent. There was a complete absence of apprehension or nervousness on the part of the patient. On making the initial incision the blood was of a bright red color and there was no indication of cyanosis. The operation was made slightly more difficult on account of the previous attempt but was completed without complaint on the part of the patient.

The intoxication in the first attempt at operation on this case was due to increased absorption incident to the delay from my attempting other local operations at the same time. But a moderate idiosyncrasy on the part of the patient was probably the principle contributing

factor. It is possible that a more serious or fatal result in this case was prevented by the partial absorption of the hypnotic which was given about fifteen minutes before the first symptom was observed.

CONCLUSIONS

The anaesthetic selected, its concentration and method of use, would best be left to the individual operator who has learned its limits of safety and which, with his technique, gives him best results.

The barbital hypnotics are our most valuable drugs in the prevention and treatment of cocaine poisoning and are probably as effective in the prevention and treatment of poisoning from any of the numerous synthetic substitutes for cocaine, all of which have individual characteristics but are similar to it in composition.

Acute cocaine poisoning is an emergency that calls for immediate action. No time for summoning outside help, consulting text books or drug store shopping for a suitable antidote. No one has the assurance that they are exempt from this catastrophe; therefore as a safeguard for your patients, as well as the peace of mind which it assures, it is well to have on hand for emergency, an ampoule of soluble barbital for subcutaneous or intravenous use.

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L. C. McRae, Pharmacologist, Duke University, Durham, N. C.

DISCUSSION

Dr. David S. Asbill: One of the ways in which cocaine poisoning may be prevented is by reducing the strength of the solution. It is now possible to produce, by the addition of phenol to a 2% solution of cocaine, anesthesia equal to that obtainable from a 10% cocaine solution without the addition of phenol. This result is obtained by making up the following solution for topical application:

Cocaine	Grams 2.0
Phenol	Grams 0.35
Distilled water	100 cc.

One may then add adrenalin for the individual case as may be required. Phenol exerts a marked synergistic action with the cocaine,

does not produce any bad effects, lowers the cost of the anesthetic, increases the depth and duration of anesthesia, and prevents the growth of fungi in the solution on standing. There is no originality in this discussion on my part. I saw the statements made in an article by Dr. Alexander Laszlo of New York, in the March, 1931, number of "Annals of Otology, Rhinology and Laryngology." In a limited number of nose and throat cases on which this solution has been used by me, I have obtained very satisfactory results.

In addition to the points already brought up, I wish to emphasize the great importance of a diet rich in Vitamin A. It has been well shown by Dean and others that this Vitamin is of great value in the prevention and treatment of paranasal sinusitis, as well as in infective respiratory and gastro-intestinal diseases in general.

Dr. W. W. Eagle, Durham: I have been most interested in the use of cocaine. In my experience I had always used the twenty percent solution. While I have been criticised for the use of such a strong solution, I have never had any ill effects, either in the office or the operating room or the hospital. It is pretty expensive to use such a strong solution, and we were asked by the business office to cut down the expense if we could, so we cut it in half and got just as good results with the ten percent solution. I have never come down to the four percent solution yet, though I suppose I shall eventually. I am happy to say I have never had any ill results yet.

Out at the Mayo Clinic last year I was very much interested in seeing them inject cocaine for the excision of tonsils. They use a one-half percent solution. I asked if they ever have any bad results and was told they had not. Out of ninety thousand injections not a single fatality occurred. They give no preliminary barbital or any other barbaturic sedative before the operation, I was told.

Dr. W. P. Hardee: I had half a case; I do not say that because my patient was a minister, but because I saw him after the cocaine had been administered. The patient consulted a Japanese dentist, who used cocaine for the extraction of a tooth, and the man went into a convulsion. I got him in the hospital several hours later. He had several minor convulsions; you might call it that, or it might have been just nervousness. I know we had to keep him in the hospital ten days before he recovered. I have often thought perhaps if the dentist had removed the tooth and the patient had bled he might not have had the trouble.

In thinking over it, I remember another case, in which I punctured the antrum. I noticed as soon as I touched the under side of the inferior turbinate with a 10% cocaine solution she immediately began to vomit, so I thought I had better go slow. The next time I punctured the same symptoms developed. So the third time I punctured her antrum I did not use any cocaine at all, and she did not vomit, nor did she become nauseated.

I heard when I was in London that the quickest thing to stop any cell growths instantly, so they might study them, is a two percent solution of cocaine; they used nothing but this. This made me think

what cocaine must do to the tissue, and I have diluted my solution since then. I must confess I do not use ten percent, except occasionally where I touch a very small area. I use two percent in eye work and four or five percent in nasal work.

I have enjoyed Dr. Fassett's paper very much, and appreciate this subject handled in such good form. The paper has, in my opinion, covered the subject thoroughly.

The fact that the essayist has had a large and long experience with local anaesthesia should make this paper, with its discussion, more worth while to all of us doing the same type of work.

Dr. Casper Jennings, Greensboro: We all know, in spite of the fact that the Mayo Clinic is using cocaine in one-half of one percent solution in these tonsil cases, that procaine is far less toxic. I dare say if we all used one-half of one percent cocaine in our tonsil cases we would have some interesting case reports at our next meeting.

I agree with Dr. Fassett that the best time to treat cocaine poisoning is before it happens and I also agree with him that sodium amytal is the best thing we can use. If cocaine poisoning really develops there is usually nothing we can do for it; it is so rapidly fatal.

BUSINESS SESSION

Dr. J. G. Murphy moved that the name of the Section be changed to "Section on Ophthalmology and Otolaryngology," and this motion was seconded by Dr. McPherson. Dr. M. R. Gibson offered an amendment substituting the word "otorhinolaryngology" for "otolaryngology," which Dr. Murphy accepted. The amended motion was then put to vote and unanimously adopted.

Dr. Whisnant recommended that the Section meet on Tuesday instead of Wednesday. The Chairman said that this matter would have to be worked out by the Executive Committee.

Dr. V. M. Hicks moved that the Chairman appoint a committee to consider the feasibility of and work out plans for having a postgraduate course certainly once a year for the members of this section, the expense to be borne by the individual members taking the course. This motion was seconded by Dr. Gibson and was carried.

On motion of Dr. Gibson, Dr. V. K. Hart, Charlotte, was nominated as chairman of the Section and was elected by a rising vote. Dr. Vance P. Peery, Kinston, was then nominated by Dr. Hicks as secretary of the Section and was also elected by a rising vote.

The Section then adjourned *sine die*.

SECTION ON PUBLIC HEALTH AND EDUCATION

Dr. John D. Kerr, Clinton, *Chairman*

The Section meeting was called to order by the Chairman in Lecture Room "B", Washington Duke Hotel, Wednesday, April 22, 2 P. M.

The first paper on the program is from the subject, "Congenital Syphilis," by Dr. Walter Clarke, American Social Hygiene Association, New York, N. Y., invited guest.

THE PREVENTION OF CONGENITAL SYPHILIS

Walter Clarke, M.A., M.B., L.R.C.P. (Edin.)

Director, Division of Medical Measures, American Social Hygiene Association, New York, N. Y.

"Prevention is better than cure" is a saying which is especially true of congenital syphilis. The prevention of congenital syphilis is simple and under favorable conditions almost certain; it constitutes one of the most spectacular accomplishments of medical science. The disaster prevented is nothing less than death in most cases and something worse than death in the few remaining cases of surviving infants, if untreated.

In stillborn foetuses, where syphilis is the cause of intra-uterine death, the treponema pallidum can be found in practically every tissue. Dr. James R. McCord in his painstaking and elaborate research has been able to find the organism of syphilis in kidney, skin, thymus, liver, spleen, heart and adrenal in syphilitic still-born foetuses. But, if the syphilitic pregnant woman be adequately treated, we secure a living child in whom after careful clinical and laboratory examination we can find no trace of syphilis. On the other hand, the cure of congenital syphilis is of course impossible in those pregnancies which result in still-birth. From some points of view the still-born are more fortunate than those who survive parturition and, remaining untreated, die early in infancy or develop congenital syphilitic lesions later in life. In surviving cases suitable for treatment that process is tedious, and expensive, though modern therapy gives results which are very encouraging.

Osler said that the fact that syphilis is transmitted from mother to child before birth "stands out less as a biological peculiarity than as a fact of supreme importance in the national health. The spirochete may kill the child in utero, a few days after birth, or within the first two years of life; or the blighted survivor may be subject to innumerable maladies." And yet congenital syphilis is easily preventable.[1]

Aside from the avoidance of marriage and of procreation by infected individuals, the prevention of congenital syphilis depends on the treatment of syphilis in pregnancy. The treatment of syphilis in a pregnant woman is not a particularly formidable undertaking, but the diagnosis of syphilis in pregnancy presents certain difficulties. Yet with all the difficulties of diagnosis, syphilis has been found to be a complication of pregnancy in a sufficiently large proportion of women to make it a problem of the first magnitude for obstetricians, pediatricians, and the health authorities, and one may add, the general public, if lay-people were but aware of the number and gravity of the disasters caused by syphilis in pregnancy.

In recent years many studies have been made in the United States and abroad to determine what percentage of pregnant women are infected with syphilis. Such studies have been almost exclusively limited to dispensary and hospital patients. Studies published by Moore of Hopkins indicate that in private practice of obstetrics from 0.3 to 2 percent of pregnant women are found to have syphilis, but it is true that too few private practitioners make routine use of a blood test in connection with their obstetrical cases.[2] Physicians are often fearful of giving offense to private patients if they suggest a Wassermann test, except in those instances where the history and the clinical findings point clearly to syphilis as a probability. The susceptibilities of dispensary and hospital patients are given less consideration and in an increasing number of clinics the routine examination upon entrance to the prenatal service includes the Wassermann or Kahn test. The results of these tests vary according to certain conditions, the most obvious being race. In the United States it has been found that Negro women present syplilis as a complication of pregnancy three or four times as frequently as white women. We conclude from our statistical studies that syphilis can be discovered in from 3 percent to 23 percent of pregnant women of the "dispensary class" and that it is especially common in Negro women.

Cases of syphilis in pregnancy can in the United States usually secure treatment if discovered. In the United States facilities exist in almost every city for the free diagnosis and treatment of indigent cases and it is commonly possible to induce a pregnant woman to undertake and continue treatment for the sake of her child, if not for her own benefit. Our shortcomings are not in regard to the provision or even the carrying out of treatment of syphilis in pregnancy but rather they lie in our failure to diagnose syphilis in pregnancy. It was found in studies made by the American Social Hygiene Association that a surprisingly small number of prenatal clinics in the United States include a routine Wassermann, Kahn, or other blood test for syphilis as a part of their routine examination of pregnant women. Our studies showed in addition, as one would have anticipated, that prenatal clinics which include such routine blood test, find from 3 percent to 23 percent of their patients are syphilitic, while those that do not include a blood test find very few syphilitics.

Over a three-year period a total of 19,411 prenatal cases were cared for by the ten Child Hygiene Division centers and some other Phila-

delphia clinics, none of which employed the routine Wassermann test to discover syphilis. During this time only twelve syphilitic infections were found, six hundredths of a percent. Similar figures from five clinics which do utilize the routine Wassermann test were obtained. Among 2,559 prenatal patients, over a three-year period, 112 cases, or 4.4 percent, were found syphilitic. It is reasonable to suppose that the Wassermann test routinely employed in the Child Hygiene Division clinics might have brought to light a corresponding number of syphilitic infections. In three years there might have been found a total of 331 instances where anti-luetic treatment might have been given with benefit to both the mother and the saving of child life.

The sooner it is brought home to the medical profession that the diagnosis of syphilis in pregnancy is commonly impossible without the aid of a blood test, the sooner progress will be made in preventing congenital syphilis. Syphilis in pregnancy is commonly without clinical manifestations though signs of syphilis are seen oftener in primiparous than in multiparous women. Information from patients with regard to previous infection is often misleading or even intentionally false, and furthermore women are frequently unaware of infection, since the primary lesion is often hidden from their view. In the case of multipara the history of previous pregnancies is sometimes suggestive and leads the clinician to search carefully for syphilis. However, it is not usual for medical attendants, in the rush of a prenatal clinic service, to discover all the facts, clinically and historically, which would indicate a possibility of syphilis and even though all such facts were brought to light they are in many cases inconclusive and misleading.

Why syphilis in pregnancy is latent remains a mystery. It is known that for certain organisms the bacteriological properties of the blood increases in pregnancy. It has been suggested by Ruth that the attenuation of the virus in syphilitic pregnant women is due to the spirillolysis of the organism through the action of chorionic ferments. Whatever may be the true explanation of this undoubted diminution of the clinical manifestations of syphilis in pregnancy the fact remains that neither on historical nor on clinical evidence can syphilis be diagnosed in every case, and the blood of every pregnant woman should be subjected to laboratory examination, at least once, and the test should be repeated in subsequent pregnancies. Our studies in New Orleans indicated a fall in the percentage of syphilis discovered in pregnancy, where treatment of women in successive pregnancies is carried out. The figures are as follows:

1928:	6.7%	All white.
1929:	4.4%	
1930:	3.2%	

The Wassermann blood test for syphilis has been found by McCord to be about 80 percent accurate. This margin of twenty percent of possible error is a cause for concern on the part of the clinician. The importance of diagnosis makes it essential to reduce the possibility of error to a minimum. The best practice not only in prenatal clinics,

but also in syphilis clinics, now includes both the Wassermann and Kahn or other blood tests. Prenatal clinics should always employ two tests as a routine procedure, submitting the same sample of blood to both methods of examination. Furthermore, all cases which present any facts in the history of previous health or pregnancies or any clinical signs which lead the medical attendant to suspect, in spite of a negative blood test, that the patient may possibly have syphilis, should be submitted to repeated Wassermann and Kahn tests at suitable intervals and in such cases a test of the cerebrospinal fluid may well be made. Since some cases of known syphilis remain negative to the Wassermann and other similar tests, a diagnosis may sometimes be arrived at on the basis of the history and clinical findings alone.

It is admitted that the "false positive" Wassermann is an occasional occurrence in pregnancy and this may introduce a certain element of confusion. But it is probable that the "false positive" is not so frequent as some observers have supposed. The clinician, after protecting his diagnosis by two blood tests, e.g., the Wassermann and the Kahn, may safely assume that women who show definite positives to both tests are syphilitic, and he may and should proceed to treat them accordingly. If a case gives a "false positive" to both tests (and this will be very rare indeed) no harm will be done by the therapeutic measures employed, and the diseased woman may be given the opportunity to bear healthy children free from syphilis. This, it is suggested, is the safe and rational policy to follow in prenatal clinics and in private practice.

It is believed that syphilis is transmitted from the mother to the foetus about the fourth month of pregnancy and that transmission is through the placenta. The treponema pallidum is one of the few organisms which can pass the barrier of the placenta. This offers some explanation of the fact, which has been observed clinically, that in order to be efficacious, the treatment of syphilis in pregnancy should begin not later than the fifth month.

These facts present additional reasons for the great effort which is being made in the United States and in many European countries to bring pregnant women under medical supervision early in pregnancy. Treatment of syphilis in pregnancy begun after the fifth month is sometimes productive of a healthy child but the chances of success diminish as the patient draws near to the end of gestation. Diagnosis should be early in pregnancy; treatment should begin immediately after diagnosis, should be pressed to the limit of tolerance and should be continued until the day of delivery. If treatment has been adequate, the results are from 80 percent to 90 percent satisfactory, that is, living and healthy children.

Syphilis is a familial disease, a point which should not be forgotten by those who attend women in pregnancy. In all cases in which syphilis has been diagnosed in pregnancy and in all cases of suspected syphilis, the husband should be carefully examined and should be

brought under treatment if found to be infected. The children of a syphilitic woman should be examined and those found to be infected should be referred to suitable sources of treatment. Many a puzzling case of suspected syphilis in a pregnant woman has been cleared up through the examination of the woman's husband and previously born children.

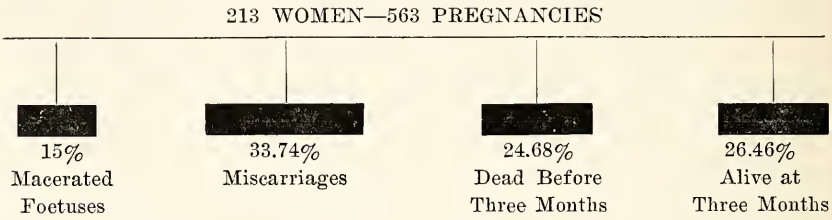
McCord out of his wide experience and careful research says, "I believe that babies born of mothers with serological evidence of syphilis are syphilitic and prolonged study and work will prove them so in a great proportion of cases."[3] It is the opinion of many modern authorities that the pregnancy of an untreated syphilitic woman ends in a congenitally syphilitic child whether the child survives the period of gestation or not. The postulate of Kassowitz that with the lapse of time, the virus of syphilis gradually becomes attenuated and that eventually, after a long series of still-births and syphilitic children, a healthy child may be born, is by many authorities no longer accepted. Gammeltoft[4] and others have presented evidence which appears to make the Kassowitz postulate untenable. David Lees remarks that "Diday's Law of Decrease," or the gradual diminution of the virulence of transmission in pregnancy till finally a healthy child is born, does not always hold good.[5] This, however, is of theoretic interest only, in view of the rule that any woman who ever had syphilis should always be treated in every pregnancy. Neglect of this principle has led to more than one disaster in the life of a woman who believed that she was cured of her syphilis. And practitioners should only with the greatest caution depart from this rule. Professor Jay F. Schamberg says, "I believe if women have had thoroughly energetic treatment and have negative serologic reactions they may, after a few years, be relieved of the necessity of treatment."[6]

The researches of American and other students of syphilis in pregnancy have resulted in a substantial agreement with the statement of J. Whitridge Williams that "Syphilis constitutes the most important single factor concerned in the causation of foetal death and was responsible for 34.4 percent of all the deaths occurring between the period of viability and the expiration of the first two weeks of the puerperium." Commiskey found 27 percent, McCord 45 percent (colored patients), Sage 23.8 percent (still-births), and Holland 16 percent of foetal and neonatal deaths were due to syphilis in pregnancy. One of the most striking demonstrations of the results of treatment of syphilis in pregnancy was presented by Laurent on the basis of his experience at the St. Etienne Hospital, St. Etienne, France. His experiences may be summarized and illustrated graphically as follows:

DIAGRAM SHOWING RESULTS OBTAINED IN TREATING SYPHILITIC PREGNANT WOMEN[7]*

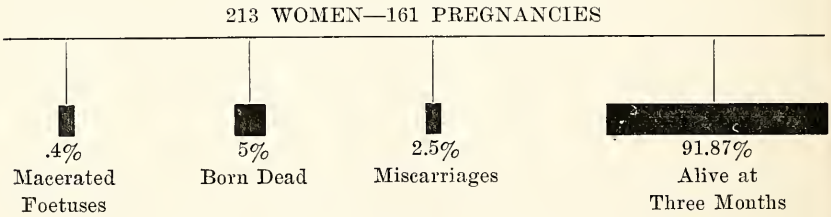
The histories of a group of 213 pregnant syphilitic women were studied before and after they had treatment.

Without treatment the pregnancies occurring resulted as follows:



Of the 26.46 percent alive at three months, it is probable that at least one-half will die in the first five years, and many of those surviving infancy will show the stigmata of congenital syphilis. Only a few of them will be apparently normal.

With treatment the pregnancies of the same women resulted as follows:



Of the 91.87 percent alive at three months, it is probable that all will be healthy, non-syphilitic children.

We have studied on the ground, McCord's results in his Atlanta Clinic and they show a similar saving of child-life and health. His figures are as follows:

*Figures taken from the article, "Prophylaxis of Hereditary Syphilis," Charles Laurent, M.D., Physician, St. Etienne Hospital, St. Etienne, France, which appeared in the April, 1929, issue of the Urologic and Cutaneous Review, Vol. 33, No. 4, p. 242.

Prepared by the American Social Hygiene Association, 370 Seventh Avenue, New York, N. Y., May, 1929.

RESULTS OF ANTI-SYPHILITIC TREATMENT DURING PREGNANCY

	Treatments Received by Mother		
	None	Less Than 6	More Than 6
Number of Cases	137	94	95
Pregnancies Ending Disastrously (Still-born or dead in early infancy)	80%	34%	9%
Baby Born Alive	30%	80%	93%
Baby Still-Born	70%	20%	5%
Pregnancy Full-Term	35%	69%	93%
Pregnancy Premature	65%	31%	6%
X-ray Showed Syphilis in Long Bones of Infant	70%	38%	3%
Cord Wassermann Positive	44%	18%	6%
Syphilitic Placenta	69%	31%	2%

Figures from James P. McCord, M.D., Atlanta, Georgia, January, 1930.

Gammeltoft, when I visited him in Copenhagen, showed me figures for his clinic which indicated results 85 percent satisfactory.

The experience of others in America, Great Britain, Germany, and elsewhere in the treatment of syphilis in pregnancy, have been equally satisfactory. A. C. Beck of the Long Island College Hospital, Brooklyn, found that 84 percent of syphilitic women receiving six or more injections of neoarsphenamine gave birth to living infants who showed no evidence of syphilis. In a study by Williams of the children of syphilitic mothers who had undergone treatment it was found that 83 percent of such children were living and were in excellent physical condition. Of syphilitic women treated in Copenhagen by Gammeltoft, 80 to 85 percent gave birth to healthy children, the variation in number depending upon the method of treatment employed.

Since treatment should begin as soon as syphilis has been discovered, the earlier in pregnancy diagnosis is made the better for mother and child. While this is true, yet, in general, the weeks from the middle of pregnancy until delivery comprise the most strategic period, and the quality of the results will depend principally upon satisfactory treatment during this period. It scarcely need be added that for the sake of the mother, treatment should be continued as soon after parturition as practicable and should then be according to the proper plan

of treatment of a syphilitic female in the particular stage of the disease in which the patient may be found. Nevertheless it is to be borne in mind that, even though the woman continues treatment until she is "cured" according to a satisfactory "test of cure," she must be suspected in any and every subsequent pregnancy and be carefully examined, including Wassermann and Kahn tests on several occasions in order to assure the opportunity for treatment should it be indicated.

What should be the treatment of a pregnant syphilitic woman in order to prevent congenital syphilis in her child? The observation that pregnant women bear treatment very satisfactorily has often been made and pregnancy is for the mother as well as the child, an advantageous time for treatment. There are numerous methods of treatment of syphilis in pregnancy and it is not possible with our present knowledge to designate a particular plan of treatment as distinctly the best. Gammeltoft secured the best results in his cases by the use of salvarsan both before and during pregnancy.[8] Laurent says, "The best treatment, in our opinion, is intravenous injection of neosalvarsan, the results of which have been for us far superior to those obtained by the use of mercury or bismuth. Neosalvarsan seems to be particularly well tolerated during gestation and we have never had an accident with it during a pregnancy.[9] McCord in his clinic used one of the "914" preparations together with mercurial inunctions, having found that patients are loath to submit to intramuscular medication.

Without attempting to describe many different systems, it may be more helpful to present a plan by which very satisfactory results have been obtained and of which the writer has some personal knowledge and experience.[10]

Two plans of treatment are suggested, (1) for those seen at or before the third month of pregnancy, and (2) for those seen for the first time in the fifth or sixth month of pregnancy. The plan for those who commence treatment at or before the third month is as follows:

FIRST THREE MONTHS OF TREATMENT

Day	"914"	and	Bismuth	or	Mercury
1st	.03 gm.		.....		.....
8th	.45 "		.....		.....
15th	.45 "		.....		.....
22nd	.45 "		.....		.....
29th	.....		.3 gm.		1 grain
36th	.....		.4 "		1 "
43rd	.....		.4 "		1 "
50th	.....		.4 "		1 "
57th	.45 gm.		.....		.....
63rd	.45 "		.....		.....
70th	.45 "		.....		.....
77th	.45 "		.....		.....
84th	.45 "		.....		.....
Total	3.9 gm.		1.5 gm.		4 grains

SECOND THREE MONTHS

Day	"914"	and	Bismuth	or	Mercury
1st	.....		.4 gm.		1 grain
8th	.....		.4 "		1 "
15th	.....		.4 "		1 "
22nd	.....		.4 "		1 "
29th	.45 gm.		.....		.....
36th	.45 "		.....		.....
43rd	.45 "		.....		.....
50th	.45 "		.....		.....
57th	.....		.4 gm.		1 grain
63rd	.....		.4 "		1 "
70th	.....		.4 "		1 "
77th	.....		.4 "		1 "
Total	1.8 gm.		3.2 gm.		8 grains

The arsenical is given by the intramuscular route at the beginning of treatment in order to bring the patient quickly under control, subsequently it is given intravenously. It will be noticed also that the first course of treatment consists in the more intense administration of one of the "914" preparations whereas the second course emphasizes the bismuth medication. The iodides may be exhibited if during the rest period it seems advisable to administer them. Colloidal iodine or syrup ferri-iodide or one of the commercial iodine products put up in keratin capsules may be administered with fairly satisfactory results and with a minimum of distress to the patient. In the Edinburgh plan as carried out by Dr. Lees and his associates, bismuth given intramuscularly is preferred to mercury in most cases because it gives rise to less local pain and induration than mercury.

The following plan is adopted with those patients who commence treatment during the fifth or sixth month:

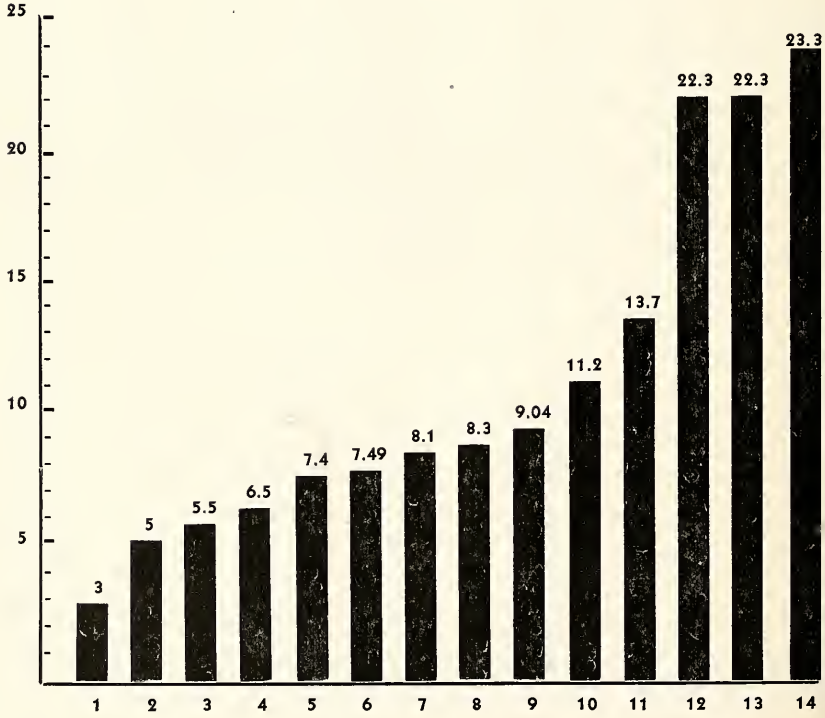
Day	"914"	and	Bismuth	or	Mercury
1st	.03 gm.		.....		.....
8th	.45 "		.....		.....
15th	.45 "		.....		.....
22nd	.....		.4 gm.		1 grain
29th	.45 gm.		.....		.....
36th	.45 "		.....		.....
43rd	.....		.4 gm.		1 grain
50th	.45 gm.		.....		.....
57th	.45 "		.....		.....
63rd	.....		.4 gm.		1 grain
70th	.45 gm.		.....		.....
77th	.45 "		.....		.....
84th	.....		.4 gm.		1 grain
Total	3.9 gm.		1.6 gm.		4 grains

It is sometimes found advantageous to administer smaller doses of arsenic and bismuth or mercury twice weekly rather than larger doses once weekly. It will be obvious, of course, that a careful watch of the urine must be kept in order to detect any kidney disturbance. Persistent albuminuria is an indication for the discontinuation of the arsenical treatment. If after cessation of treatment albuminuria still continues it may be assumed that the condition is due to factors other than treatment and medication may be cautiously renewed. It has been found that bismuth is less irritant to the kidneys than mercury.

It is an impressive fact that congenital syphilis lies almost wholly within our control if appropriate methods can be applied. It is, first of all, necessary that full advantage be taken of modern diagnostic methods in order to discover syphilis in pregnancy. Secondly, it is necessary that all cases of syphilis in pregnancy should be brought under early control, and should be treated persistently and intensively during this period. When these methods are applied to all cases of syphilis in pregnancy, congenital syphilis with its immeasurable disasters, personal and social, will soon cease to exist.

EXTENT OF SYPHILIS IN PREGNANCY

(Percent of women with syphilis in prenatal clinics, based on 14 studies of a total of 58,000 unselected cases in 30 clinics.)



1. A. C. Beck, Brooklyn, N. Y., studied 1,000 consecutive deliveries previous to 1921 of which cases 3% were syphilitic. (Journal American Medical Association, August 6, 1921.)

2. S. A. Gammeltoft, Copenhagen, Denmark, found 5% of 23,383 pregnancies from 1912-1916 syphilitic. (American Journal of Obstetrics and Gynecology, June, 1928.)

3. E. C. Sage, Omaha, Nebraska, found 5.5% of 1,200 pregnant women syphilitic. Also of 118 still-births, 23.8% were due to syphilis. (Nebraska State Medical Journal, November, 1928.)

4. G. H. Dodds, Edinburgh, Scotland, found in 2,000 consecutive pregnancies, 6.5% syphilitic. (Journal of Obstetrics and Gynecology, British Empire, Volume 34, 1927.)

5. A. W. Stillians, Chicago, Illinois, found in the clinics of the Chicago Lying-In Hospital from 1917 on, that of 6,954 women, mostly white, 6% were syphilitic, of 814 colored women, 19.2%, a general average of 7.4% syphilitic. (Archives of Dermatology and Syphilology, March, 1928.)

6. C. Leon Wilson, Chicago, Illinois, from 1920 to 1927 studied 3,631 colored pregnant women of all social classes and found an average of 7.49% syphilitic. The percent syphilitic declined fairly continuously from 15.1% in 1920 to 4.7% in 1927. (American Journal of Obstetrics and Gynecology, Volume 18, August, 1929.)

7. J. L. Pomeroy, Los Angeles, California, reported (by letter) that in 517 routine Wassermanns on pregnant white, Mexican and Japanese women 8.1% were syphilitic.

8. Valeria H. Parker, American Social Hygiene Association, New York, N. Y., in a study of 15 clinics in 15 communities (1925) found a general average of 8.3% syphilitic among 6,300 prenatal cases. (Journal of Social Hygiene, February, 1929.)

9. J. N. Cruickshank, London, England, in 1920-1921, studied in the Glasgow Royal Maternity and Women's Hospital, 1,881 prenatal patients, mostly ward, among which 9.04% were found syphilitic. (Medical Research Council, Child Life Investigations, London, 1924.)

10. J. Whitridge Williams, Baltimore, Maryland, from 1916 to 1919, examined 4,000 pregnant white and colored women of whom 11.2% had syphilis (1,839 white women, 2.48%; 2,161 colored, 16.29%). Of 302 foetal and neonatal deaths resulting from 4,000 pregnancies, 34.4% were due to syphilis. (Johns Hopkins Hospital Bulletin, November, 1922, and May, 1920.)

11. In the Detroit Department of Health prenatal clinic among 4,120 consecutive admissions before 1926, white and colored, 13.7% were syphilitic. A study of 699 white women in 1922 showed 8.7% with syphilis, of 619 colored women, 19.3%. (City Health, Detroit Department of Health Bulletin, May-June, 1926.)

12. J. R. McCord, Atlanta, Georgia, in 1925 reported among 300 colored pregnant women 22.3% with syphilis. Of pregnancies "ending disastrously" 31.7% were due to syphilis. (American Journal of Obstetrics and Gynecology, June, 1925.)

13. The Department of Health, Birmingham, Alabama, in 1928 and 1929, found among 735 white and colored women 22.3% syphilitic (116 white women 8.7%; colored women, 24.8%). (Mimeographed report of prenatal clinic.)

14. J. C. Gebhart, New York, N. Y., 1917-1923, found 23.3% syphilitic among 1,224 pregnancies of colored women. (Journal of Social Hygiene, April, 1924.)

Experience in clinics and private practice has shown that a large reduction in the prevalence of syphilis in pregnant women and in foetal and neonatal deaths due to syphilis can be accomplished by effective treatment. At a later date it is proposed to tabulate some of the more important recorded data showing the death rates of babies of mothers who had no treatment and the reduced mortality among babies born after the carrying out of adequate treatment.

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3. A Study of Three Hundred Pregnant Negro Women Having a Four-Plus Wassermann, by James R. McCord, M.D., Atlanta, Georgia, American Journal of Obstetrics and Gynecology, June, 1925.

4. Syphilis and Pregnancy, by S. A. Gammeltoft, M.D., Copenhagen, Denmark, American Journal of Obstetrics and Gynecology, June, 1928.

5. Diagnosis and Treatment of Venereal Diseases, David Lees (Publishers E. and L. Livingstone, 16 and 17 Teviot Place, Edinburgh, Scotland).

6. Personal communication to the author.

7. Figures taken from the article, "Prophylaxis of Hereditary Syphilis," Charles Laurent, M.D., Physician, St. Etienne Hospital, St. Etienne, France, which appeared in the April, 1929, issue of the Urologic and Cutaneous Review, Vol. 33, No. 4, p. 242.

8. Same as 3.

9. Prophylaxis of Hereditary Syphilis, by Charles Laurent, M.D., St. Etienne, France, Urologic and Cutaneous Review, April, 1929.

10. Same as 4.

Prepared by the American Social Hygiene Association, 370 Seventh Avenue, New York, N. Y., October, 1929.

DISCUSSION

THE CHAIRMAN: Dr. Clarke's paper is now open for discussion.

DR. J. A. MORRIS, Oxford: The medical profession is charged with the health of the community. In these days doctors are scarce. The country doctor no longer exists, and none of them, as has been alluded to, want to treat these cases of venereal disease. That leaves a difficulty unsolved.

We have a rural county, a very poverty-stricken county, too, and yet we want help as much as anyone else. We don't know what to do with that problem. I have asked the health men what ought to be done about it. If I begin to treat those cases, I will soon be deluged with a class I know nothing about. I am health officer for the county. Everyone knows the tendency of the public when they get free treatment to rush to it, not simply the indigent, but also those who are not indigent, and there is a problem for me as to when to stop, and where I can stop at the right place. I am asking others how to stop because I want to stop just as badly as any other of the doctors.

We all know that these diseases occur in every stratum of society, but particularly so in the moneyless. There is no money in the major portion of these cases and the doctors do not want them. They refuse to treat them, and yet the public is looking to the doctors to remedy the situation.

We know that these things, unleashed, just allowed to grow, will increase the very class that Dr. Clarke has brought before us, the pregnant women who are going to project that thing into the world still further. It multiplies in the womb and out of the womb just simply because no one is pitted against it.

If the doctors won't do it, who will do it? I remember several years ago that Dr. Rankin, when he was health officer, was set upon and with some justice, I suppose, from the medical profession's viewpoint, but we have got to look at the thing from both sides. He was set upon by a medical society of the county, and his reply was that it was a solar plexus blow, if it landed; but he asked that medical society if they were doing the thing that they did not want the health department to do. There, of course, is the crux of the whole thing. If the doctors would offer to do that stuff and see that it is stopped, then there would be no difficulty for the health officer at all; but until that is done, there is a difficulty, and no one has solved it for me, and I wish somebody in this discussion would offer a solution.

I have already had this reply: You will have to take it to a hospital. That was suggested a while ago. The hospitals in Raleigh do take that over and I congratulate the doctors there, but unfortunately we don't have that same situation in our county. Someone who was advising me said, "You will have to get your County Commissioners to make an appropriation, because it ought not be done free of charge." To that I had to say, "Amen." The doctors ought not have to do it free of charge, but that isn't getting the appropriation at all and obviating the difficulty which I am up against.

If anyone has a solution that will apply to a county that will not make the appropriation, I will hail him with joy and listen to him to the very last phrase of his advice. (Applause.)

Dr. John Symington, Carthage: I appreciate very much Dr. Clarke's paper. I should like to ask two questions. He did not go into the detail of treatment. There are some doctors who stop after the patient has had five injections, and I should like to hear Dr. Clarke's opinion about the proof of a patient's being cleared up.

What is the average number of injections necessary to cure the patient?

Second, as people come in for marriage certificates to our offices, I have been wondering if it is not just as important to have people who are going to be married examined by the Wassermann test, because it is not only the life of the baby which is to be taken into consideration, but also it is the life of the parent, male or female. I should like to hear Dr. Clarke's opinion about that.

Dr. J. Roy Hege, Winston-Salem: Mr. Chairman, I don't quite know why you picked on me to open this discussion—I do have an idea, too—we have the reputation of having a lot of negroes over in Winston-Salem, and I want to correct that by saying that, very few of them live in the County. In other words, I am passing the buck to the City.

Some time ago I saw a reprint of the U. S. Public Health Service in which I read that they had made some studies of venereal diseases in some of the Southern States and that one out of every four or five colored persons had a four-plus Wassermann or positive Wassermann. As we have about 20,000 Negroes in Winston-Salem, 5,000 loomed up before my eyes as being syphilitic. We have two clinics in Forsyth County, one is operated by the County Health Department, and one by the city. We have sixty in attendance at the County clinic and I understand less than 150 in the city—so out of our 5,000 syphilitics, we are treating in the neighborhood of 200.

There are several specialists in Winston doing work in venereal diseases and they are grumbling about our clinics being free, so they evidently aren't too busy. If they were, they wouldn't have time to grumble. This venereal subject is such a big problem that it makes me dizzy to think about it.

I have enjoyed this paper. It has been very interesting. It gives us something to think about in Winston-Salem and Forsyth County. We must approach it in some way. It is a public health problem. Somebody must do something. It would be quite easy to take the colored birth rate of the city and take Dr. Clarke's figures and figure out how many syphilitic babies are being born in Winston-Salem each year. I wish Dr. Carlton was with us. I am glad I heard the paper and wish that Dr. Carlton could have heard it also. I am glad I have been dazed by it. (Applause.)

Dr. C. O. Abernethy, Raleigh: I am not speaking from the standpoint of public health, for I am not a public health official, but a venereal disease specialist. We have two clinics in Raleigh, one operated by St. Agnes Hospital (colored), and one by Rex Hospital (white). We treat both white and colored at Rex Hospital. I am sure all genito-urinary men are glad to have free venereal clinics. I should very much dislike to practice genito-urinary surgery or treat such diseases in a city where there was not a public health clinic because the treatment in the private cases is rather expensive. I think if you will investigate more fully, you will find you are mistaken in thinking that venereal specialists do not welcome the clinics, as many free clinics as we can have, because when you take a man's bread

money for the treatment of disease, you are doing rather a serious thing.

It is the practice of the men in Raleigh to send all the cases to the clinics who are not able to pay. I think a paper like Dr. Clark's should be read before the Gynecological and Obstetrical Sections. A Wassermann test is not a disgrace. An examination for diagnosis, is incomplete (I don't care whom you are examining) unless you do a Wassermann or some other blood test. I think we are all very rapidly coming to the point where we will do Wassermann and Kahn tests on our patients. I would be afraid to turn a man loose, I care not for what he came to me, and send him out without a Wassermann being done. The same thing applies to women.

We talk about syphilis a great deal and about the drinking cup, and the various innocent infections that may occur in this disease. If they occur as we think they do, where does it end? There is no end. The rich, the middle class, the poor white men and white women, are exposed to innocent infection just as negroes are. There are many white women who give birth to syphilitic children which could be prevented if a Wassermann test were made. It should be done on every case you have. I am glad Dr. Clark brought that out.

I can cite instances where I have personally checked up, had the family physician or the obstetrician check up, with some very, very gratifying results.

I think this Section should be congratulated on bringing Dr. Clarke down here, and I am sorry that his paper hasn't been read in a public meeting so every doctor in North Carolina could hear it.

Dr. Clarke, closing the discussion: I am very much gratified by the keen interest shown in this subject.

Dr. Davison mentioned about four percent of congenital syphilis among the children admitted to the Duke Hospital. That is about what one would expect. The majority of these children die before birth.

With regard to this question of what to do about the treatment of indigent patients. It is not right, nor is it practicable to ask the private practitioner to take care of all the indigent patients in the community. That responsibility belongs clearly and specifically to the state and the municipality or the county, and the same adequate provision should be made for the care of cases of syphilis in indigent persons as is made for the care of tuberculosis, and the sooner we can get the general public and especially our legislators to understand that, the better it will be.

One question was asked with regard to the amount of treatment that is required. Did you refer particularly to pregnancy?

Dr. Symington: Any general case.

Dr. Clarke: In pregnancy I should give as much as I could. You can expect to have quite good results if you can get the woman under treatment by the middle of pregnancy and continue until the end. Even with only six doses you can, in a considerable number of cases, obtain a fairly satisfactory result.

Taking syphilis as a general proposition, the amount of treatment required depends on what you are aiming at. If you are looking at syphilis as a health officer, your objective is to render as many people non-infectious as you possibly can in a given period of time and with given funds, you may aim at a sufficient amount to prevent infectious recurrence, and fifteen treatments is the suggested minimum number of doses. Aim at a minimum of fifteen for every patient. If you are going to attempt to cure the patient, you will have to go beyond that a good deal and the general rule that can be laid down is that treatment should be continued at least one year after all your tests are negative, after there is a negative blood and a negative cerebrospinal fluid.

I think the same gentleman asked about examination of candidates for marriage. There is a lot of excitement on that subject. Some states want to enact laws, and our opinion in the American Social Hygiene Association is frequently asked regarding this question of medical examination as a prerequisite for marriage. Usually the question is asked by someone very keen to promote the control of syphilis and gonococcal infection, and that is our hobby, too, of course, but I believe, and the position of my organization is that it is not reasonable to expect the commonwealth to undertake an examination only for syphilis or gonococcal infections. If a state is going into this work, there should be a competent general medical examination which would aim to protect the contracting parties from any infectious or disabling disease, and it should include syphilis and tuberculosis, among many other things.

The first question was a cry of despair made with regard to the size of this problem. That, of course, is quite right, and it is no different in North Carolina than it is in any other state. Every one of our states has an enormous problem in this question of syphilis. I have a suggestion which I am making as I go about to medical meetings and talk with health officers, and that is that the experience of some of the other states should be looked into.

In the State of Connecticut, for example, an arrangement is made for the treatment of indigent syphilitics through the state's agreeing to pay the private practitioner two dollars per visit, or some fee that is proper for the particular community, and the state provides the drug. That, I think, is quite a good scheme, and it has worked very well for some years in the State of Connecticut.

A similar plan a little modified is in effect in Alabama, and has been for many years. It was set up there by Dr. Welch, and in that state an arrangement is made with practitioners in every county. They are called collaborating clinicians and they are assisted by the state in handling this problem.

From the public health point of view I have two suggestions: First of all, narrow the problem of syphilis down to the point where it is purely a public health problem; in other words, only attempt, except in an unusual circumstance to deal with infectious syphilis. Do not, in your public health department, syphilis clinics spend your main effort on old tabetics, old cases of heart disease no longer in-

fectious? That is a medical relief problem, and if you are burdened with the weight of the patients that could come to you, if you are overwhelmed with the application for treatment, pick out those which are a definite menace to public health; namely, those in the early stages, and who now are or likely to become infectious and carriers of the disease.

The next thing is this: Syphilis, as I said in my paper, is a familial disease. Why not, if necessary, narrow the problem in this respect? Attack congenital syphilis. The public will be with you absolutely heart and soul. You will have no kicks, no complaints, about attacking congenital syphilis. If you attack it, you aim first of all, of course, to see to it that every woman attending a prenatal clinic receives a routine Wassermann, and you bring discovered cases of syphilis to treatment. You bring them into your own clinic or, if they are private patients, you send them to the private practitioner for treatment. When you find a woman who has syphilis, your next step is to attack it from the standpoint of the family. You have the woman with the positive Wassermann, who is pregnant. Then get in her husband and see whether he also has syphilis. Bring in also the children, if any. Here the public health nurse comes into the picture. She assists in getting the husband and children in. In that way you have a little compact problem, one which will not arouse any bad feeling in the community or on the part of the people who have prejudices against the so-called "venereal diseases," and it limits your problem, furthermore, to a size with which even a comparatively small clinic can deal. There is one further thing about it, and that is it brings in the social and the family work side of syphilis together with the purely medical aspects. (Applause.)

EYE LESIONS OF CONGENITAL AND ACQUIRED SYPHILIS

Henry L. Sloan, M.D., Charlotte

McDonagh says that syphilis is the only disease which has a written history beginning with a definite date. It was transported to Spain from Hayti by Columbus's sailors. It broke out in epidemic form in 1495 during the occupancy of Naples by the French and soon became one of the great scourges of the Middle Ages. Lues dispossessed the French army of Naples. The French soldiers took it back to France. With great rapidity it spread throughout Europe. Since that early date it has been a pressing public health problem.

It has been said that in the life of the ordinary man there are only three dates of public interest: the date of his birth, the date of his marriage, and the date of his death. We know something of the origin of syphilis, much of its consortorial effects, but we have yet to write its obituary.

The writing of this obituary is the continued responsibility of the social worker, every doctor of medicine, the serologist, syphilographer, the neurologist and the ophthalmologist. To the ophthalmologist syphilis is of particular interest because of the manifold and varied manifestations of the disease in the eye. Lues in the eye, as well as

other parts of the body, so often imitates pathological processes from other causes that it has been called the "great imitator." Parsons, I think it was, said when you think you have found some new or little-known eye disease you should be on guard lest you are overlooking some new manifestations of ocular lues. It has been estimated that 16% of blindness in Sweden is due to syphilis. Lamb, of St. Louis, tells us that 16% of blindness in Missouri is caused by syphilis, and of this number 70% is due to congenital syphilis. It is probable that lues is no more common in Missouri than in other states of the Union; so it is probably true that 15% of all blindness in the United States is syphilitic. From the standpoint of the conservation of vision the ophthalmologist has quite enough responsibility to challenge his most active interest.

CONGENITAL LUES

Chorioretinitis and iridocyclitis, both of which differ in many respects from similar lesions of the eyes of those with acquired lues in the adult, are not infrequently present in the congenital luetic. The incidence of ocular involvement in hereditary syphilis Rabl found to be 39% in 127 cases. Fournier found 48% in 212 syphilitic children. In 100 luetic children examined by Dr. Jno. Green of St. Louis, 52 presented definite eye-ground lesions and 74 showed ocular pathology in one or more of the tissues of the eye. You will recall that 50% of the children born of syphilitic parents are still-births.

Stokes tells us that 78% of those having congenital syphilis suffer eye involvement at some time before the age of thirty. He says that according to a study recently completed, 66% of these persons give a positive blood Wassermann reaction.

J. S. Friedenwald reports his findings in the post-mortem examination of the eyes of 175 who were still-born or who died a few months after birth. Microscopic studies were made of all the eyes so obtained. Thirty out of the total number of infants of this 175 had congenital syphilis. In 29 of the 30 syphilitic infants, ocular inflammatory lesions were found. No lesions were found in the non-syphilitic infants.

In the eyes of the still-born luetic infants spirochetes have been demonstrated in the scleral tissue near the corneo-scleral junction, and especially the sheaths of the blood vessels which perforate the sclera. In a small number of cases there is a diffuse infiltration of the choroid (J. S. Friedenwald), and sometimes of the retina and the optic nerve. The lesion here is a very diffuse one and leads to a widespread interstitial scarring, in contradistinction to the sharply circumscribed scars which result late in life. The most extensive scarring in these congenital cases is usually in the layers of the choroid, the chorio-capillaris (J. S. Friedenwald—"Pathology of the Eye").

Interstitial keratitis is the most frequent, as well as one of the gravest manifestations of inherited syphilis. Stokes tells us that 52% of those with congenital lues develop interstitial keratitis before the age of thirty. With treatment it often ends in marked bilateral reduction of vision and without treatment not infrequently in blindness

in one or both eyes. It usually develops early in life—most often between the ages of five and twenty. It has occurred during the first week and as late as the 46th year.

The early symptoms of interstitial keratitis are photophobia, pain and tearing. The early signs are ciliary redness, soon followed by the ground-glass appearance of the cornea in the majority of cases. Soon the entire cornea becomes opaque and blindness rapidly supervenes, involving first one eye and then the other in the majority of cases. Foster Moore (in his Medical Ophthalmology—1922) says it invariably occurs in the second eye in spite of the best of treatment, most vigorously prosecuted. I'm glad to say there is evidence to show that Moore was mistaken in clinging to the dictum of Hutchison. Interstitial keratitis is distinguished clinically from the other forms of corneal inflammation in that it involves primarily the inner layers of the cornea. J. S. Friedenwald says the spirochetes are found in the deeper layers of the central part of the cornea, and are surrounded by considerable edema and necrosis of the cornea. This would seem to settle the moot question as to whether or not spirochetes in cornea cause interstitial keratitis. Wandering cells and blood vessels grow in toward the lesion, and during the acute stage form the very well-known picture seen in interstitial keratitis. As healing proceeds the blood vessels grow into the cornea and the necrotic areas are replaced by scar tissue. Miliary gummata may form in the corneal stroma and in the iris. Heavy deposits are laid down at the inner surface of the cornea and are accompanied by a marked proliferation of the endothelial lining. These deposits are often organized into a dense sheet of scar tissue. This explains the poor vision that so frequently follows interstitial keratitis.

Interstitial keratitis is accompanied by the well-known stigmata of congenital lues. It is, moreover, often complicated by anterior chorioretinitis. In a few cases the retina at the macula is destroyed. A few cases have as a sequel cataract and in M. Cavill & Derby series of 322 cases, 2.5 had optic atrophy.

It is more frequent in females. The two eyes are involved simultaneously in about 25% of cases. The intervals of attack in the two eyes may vary from a few weeks to a few months—usually a few weeks. The patient should be warned that the second eye will likely become involved. Otherwise, he may become discouraged and discontinue treatment. Recurrences are fairly frequent—14% according to Igersheimer in 257 cases. Spicer reported 9%, and M. Cavill & Derby report in 100 treated cases, 3.6%; in 100 untreated cases, 27%.

Because of the fact that interstitial keratitis occurs during school years it often seriously affects the patient's schooling, and consequently his status in society. M. Cavill & Derby report that in 200 cases, "59 of the patients were not of school age at the time of the attack of interstitial keratitis. 31 of school age lost no time in their school course—i.e., they were able to keep up with their classes. 54 lost a month to three years. Some of these never returned to school, and on this account their occupation was undoubtedly of a lower type than if they had completed their education. 48 of the patients state

that their lowered vision handicapped them in their work for a livelihood, and they had to take jobs of a lower grade work, with the accompanying lower pay, which placed them in many cases in a lower grade of society. A large percentage of these patients are incapacited by failure of hearing as well as sight, which leaves only a very low grade of work and low remuneration open to them. In times of depression they suffer even more. Of these cases, 48 were placed in Perkin's Institute for the Blind; 24 were referred to the State Division for the Blind, and two to the school for the deaf."

Interstitial syphilitic eye defects can be prevented by use of the knowledge and methods of treatment at our disposal. We must inform the people how important it is to be free of lues before marriage. By proper treatment of the expectant mother who has lues, it has been shown that she may expect to give birth to a normal child. It needs to be repeated again and again for emphasis the enormous benefits that have come from prenatal treatment of the syphilitic mother and the treatment of new-born infants. The late Dr. Jno. A. Fordyce first demonstrated the value of this treatment at the Vanderbilt Clinic. Dr. J. Whitridge Williams of Johns Hopkins, says unqualifiedly that 90% of the children born of syphilitic mothers who have had four or five adequate treatments before the birth of the child can be guaranteed to be normal.

The effect of prenatal and neonatal treatment of lues is reported by Udo J. Wile and Jos. W. Shaw (Yearbook of General Therapeutics, 1930, p.p. 55 & 58), in one hundred pregnant mothers treated by intravenous injections of arsphenamine 82%, and neoarsphenamine in 18%, together with mercury inunctions. The blood Wassermann or Kahn test strongly positive in 95%, weakly positive in 4% and negative in 1%. Courses of from three to six injections were given, followed by intervals of one to three months during which time mercury was administered by inunctions. The patients averaged 2.2 gms. of arsphenamine, some received as much as 4 gms. during pregnancy, and none showed any ill effects. A course of 35 inunctions was the average amount of mercury administered. Under this care, from the 100 syphilitic mothers there were delivered 92 living babies of whom seven were premature and 85% were full term. Of the remaining 8, 3 were premature still-births, 2 were full term still-births, and 3 were born prematurely and lived only a few hours.

The authors found that 26 of the 92 living children had apparently escaped infection, while 66 required treatment. They conclude with the advice that regardless of the absence of clinical or serological evidence of infection, it seems wise to treat early the babies born of luetic mothers to supplement the prenatal treatment of the mother.

Under rigid prenatal and neonatal treatment of the congenital luetic, we may prevent the stigmata of inherited lues and inherited ocular diseases. It seems not illogical to hope, under ideal conditions, that we may be able to prevent entirely interstitial keratitis. M. Cavill & Derby, in an interesting contribution before the Ophthalmological Section of the A. M. A. in 1925, showed that intensive treatment did much to arrest the progress of interstitial keratitis, and that

involvement of the second eye could be prevented in 18% of the cases. Stokes says that in his own material treatment of interstitial keratitis has shown 60% good results among largely old and neglected cases and relapses. Work being done on interstitial keratitis at the Wills Eye Hospital Clinic for the treatment of ocular syphilis by Joseph V. Klauder, M.D., Harold F. Roberston, M.D., show that involvement of the second eye while the patient is under treatment is not a biologic one, as has been held by many authorities, but intimately concerns the lack of sufficiently intensive treatment. They feel that treatment with mercury alone will not prevent involvement of the other eye or prevent recurrence in the involved eye. By use of a formula of treatment not intensive enough to be hazardous to the patient's health, they have reduced involvement of the second eye to 6%, and by continued treatment they have been able to prevent recurrence in the involved eye.

Of course, when one member of a family has congenital syphilis, every other member of the family should be examined and treated for the disease whenever found. Here is when the coöperation of the public health people and the social workers is indispensable. The hardest part of the whole porblem is the practicable one of getting the syphilitic to accept treatment adequate for a cure. 40% to 50% of clinic patients need some definite follow-up method to keep the patient under treatment until he may safely be discharged. It seems to me that the figures hold good even for private practice, in my own experience.

ACQUIRED LUES

Lues involves directly every ocular structure except the crystalline lens, and this is often involved indirectly. In no organ of the body are the ravages greater than in the eye. A chancre is rarely found on the eyelids. As is related in the 1930 Yearbook of General Therapeutics, a young man with his fingers moist from an unsanitary toilet, may warmly shake hands with a friend. Soon afterward, the friend's eye itches, he gives it a good rubbing with the hand infected by the hand-shake, and as a result a chancre grows on the conjunctiva, most often near the inner canthus. The eruption of secondary lues may be rarely seen on the eyelids.

Iritis most often occurs in the secondary stage; it may occur in the tertiary stage. These cases are seen less frequently than formerly, but hardly a month passes that we do not see one or more cases in our office. Holloway, in a recent paper on iritis, says that "apparently the 25% accepted by Igersheimer as the probable incidence of iritis due to syphilis is consistent with most observers. During the secondary stage we find lesions of the retina, choroid and the optic nerve. All these lesions are of the acute inflammatory type and respond readily to treatment. Unrecognized and without proper treatment, disaster will overtake these eyes. Treatment should be prosecuted vigorously until the disease is arrested, to prevent the optic atrophy of parasyphilitic conditions and inadequately treated late syphilis.

Tertiary syphilis may affect the eye in many ways. It frequently causes uveitis, not infrequently iritis. Gummata are found in the

iris or ciliary body, the orbit, etc. Gumma of the brain or basal meninitis may give signs in the eyes of brain tumor. The subjective symptoms of brain tumor may also be present. Blindness may ensue.

REPORT OF A CASE SEEN BY DR. SMITH AND DR. HART OF OUR STAFF

C. W. W. First seen on January 14, 1930. Age 28 years.

Diagnosis: Gumma, or Basal Meningitis (luetic).

C. C. Headaches over forehead and temporal region for three years. Severe attacks a month to three months apart. Last ten days and gradually wear off. Dull headaches most of the time. Patient says blood was taken from his arm three or four months ago, and was negative.

External Examination: Inconstant nystagmus to right and to left. Sometimes horizontal, sometimes rotary.

Fundi: Bilateral choked discs.

Homonymous hemianopsia, right.

Pulse rate 50.

Blood: Wassermann negative.

Spinal Fluid: 4 plus Wassermann, cell count 2.

Vision: Right eye 20/70 plus; Left eye 20/30 plus.

Treatment: Mercury followed by bismuth.

3-5-30: *Vision:* Right eye 20/50 plus 4; Left eye 20/20-1. Discs blurred, no swelling.

3-19-30: *Vision:* Right eye 20/40; Left eye 20/20.

4-1-30; 5-20-30; 10-1-30; 11-14-30: Vision same: Right eye 20/40; Left eye 20/20.

4-1-30: Pallor of entire right disc. Left: margins blurred; color good. Perivascularitis extending out from discs.

There are a number of interesting points in this case. In the first place, the symptoms are those of brain tumor; and without a spinal fluid Wassermann, which was four plus, the diagnosis would have been missed. This, together with the response to treatment, established the diagnosis beyond peradventure.

There are many cases of neurosyphilis and cerebral syphilis where the blood Wassermann is negative, and the spinal fluid Wassermann strongly positive. It is important to bear this in mind.

Optic atrophy is frequently found in parasyphilitic conditions such as tabes, or general paresis, or the poorly treated victims. The real tragedies of acquired lues are the optic atrophies that occur years after the initial lesions. These patients may give histories of an initial sore, a few shots of salvarsan, then the sore disappeared and they went on their way feeling that they were well. Later, in the prime of life they come in with chalky white discs—far advanced case of optic atrophy. The damage is already done. They soon become blind and they and their families become public charges, while they are seemingly well and in the prime of life. These cases could be arrested, if we could but discover the optic atrophy in its early stages, and proper intensive

treatment instituted and prosecuted till a cure is effected. Adequate treatment at the outset will prevent these tragedies.

The brain and the central nervous system bear much of the brunt of syphilis. It tends to lurk here. Hence it is no mystery that the eye, which starts as a bud from the brain and continues its direct connection with it through the optic nerve, should bear frequent hurt and damage from the same cause. Stokes tells us that 65% of patients with early neurosyphilis still in a treatable stage will present lesions involving the innervation of the eye, the pupils, and the extraocular muscles. 75% of extraocular muscle pareses can be traced to syphilitic infection early in life. Osler's famous quotation, "Know syphilis in all of its manifestations and relations and all things clinically will be added unto you," is in a limited sense true of ophthalmology.

The result of treatment of luetic eye diseases depends on early diagnosis and adequate treatment. No less an authority than Stokes says that "the process can be stopped at the point where the disease is first discovered."

Ocular lues is only the local manifestation of a general infection. Dr. Wm. F. Snow, general director of American Social Hygiene Association, says: "I suppose next to serological examinations, the neurological ones are most essential; and I think I should put third, the examination of the eyes." The local specific eye lesions demand special treatment. But the larger question of eradicating the disease is the more important one. In the campaign against syphilis the eye is necessarily in the front line.

We must emphasize the importance of prophylaxis and education. Every person should have a blood Wassermann before marriage. He should be taught that in case of infection a prolonged, carefully prosecuted course of treatment, supervised by an expert syphilotherapeutist, should be insisted upon until he is pronounced cured by the expert. Every expectant mother should have a blood Wassermann. If she has lues, prenatal and neonatal treatment is mandatory. By following such a program, the stigmata and crippling effects of congenital ocular lues can be averted, as well as the ravages of the acquired ocular changes.

INTERRELATION OF COUNTY HEALTH AND COUNTY PUBLIC WELFARE DEPARTMENTS

Mrs. W. T. Bost

State Superintendent of Public Welfare

In the counties, just as in the State, there must be an integration of all forces looking to the public good. We are not working as a separate educational, health, farm and home demonstration, or public welfare unit, but simply as a part of the whole. We must bring together, under the common direction of the county government, those operating units which, because they are working in the same general field, should have very close relation with each other.

Coöperation between all the social agencies is essential if people are to be adequately and intelligently served and our social problems,

whatever they be—dependency, delinquency, maladjustment, sickness or what-not—gradually controlled and decreased.

Are we working out our county program to the end that we may have a unified whole? Are we using every resource at our command to reach definite ends? Are all our facilities used to the best advantage with the least possible friction, and the elimination of over-lapping? These are questions we may well ask ourselves. Integration of various services looking to the welfare of the county cannot come about without mutual understanding.

PROBLEMS OF HEALTH AND PUBLIC WELFARE CLOSELY ALLIED

But my talk today is concerned with only two of these agencies—county health and county public welfare—and I shall try to point out the sort of relationship that, to my mind, should exist between them. A statement made at the White House Conference on Child Health and Protection that seems pertinent at this juncture follows:

"There are organizations for various special forms of social work, all attacking in some way the problems of social inadequacy just as there are many medical institutions dealing with problems of ill health. So close is the relation between the two problems that it is fair to say that there is always a physical or health component in social work and always a social component in medicine. Only by breadth of understanding and by collaboration of all those concerned can the ground be covered completely." We deal largely with maladjusted members of society, those unfortunate ones who through the force of circumstances are the victims of a social order imposing standards to which they are morally and mentally unable to conform. The physical needs of such as these must be met before we can go far with their moral reconstruction, or plan for their care and protection. Consequently a reasonably adequate health plan must be a definite part of the work of the superintendent of public welfare, and such a plan can only be worked out through the assistance and coöperation of established health agencies. It is just as important that the physician should have a social point of view, should have some knowledge of the environment, heredity and living conditions of his patients as it is for the social worker to have some training and scientific knowledge as a basis for his work. Relationship between physicians and social workers should be one of close coöperation and interdependence. Few know better than the public welfare worker the social significance of ill health for "any condition that involves 1/10 of the units of society in incapacity and serious impairment is of social significance."

Miss Haupt of New York City, at the White House Conference gave the following amusing incident: "In this eternal question of the public health nurse and the social worker, I am reminded of one evening when two of my brothers, ages 8 and 10, were invited to visit an aunt. They were very much set up about it. When they got there they were even more thrilled to find they were to sleep together in a four poster bed. They had formerly at home slept in single beds. Unfortunately the poor aunt didn't realize what she was getting into

because until the late hours of the evening there were screams and yells of, 'Say, you are on my side.' 'Hey, get off my side, will you?' It seems to me as if one of the very important things we have to do is to decide whose side is which and where is the job of the public health nurse and where is the job of the social worker, and that comes particularly close in this field of medical social work." Where there are two workers, where does the job of the public health worker leave off, and when does the job of the social worker begin? In each there seems to be a certain job with very definite things to be done.

First, we should have a real knowledge of each other's program—a real knowledge of each other's technique. You will be interested in a comparison of the specified duties of the county welfare department and the county health department and in noting as well, that there are certain duties that bring mutual responsibilities and close relationship between these two useful agencies.

DUTIES COUNTY WELFARE DEPARTMENT

To serve as Chief School Attendance Officer.

1. To have, under control of the county commissioners, the care and supervision of the poor, and to administer the poor funds.
2. To act as agent of the State Board in relation to any work to be done by the State Board within the county.
3. Under the direction of the State Board, to look after and keep up with the condition of persons discharged from hospitals for the insane and from other State institutions.
4. To have oversight of prisoners in the county on parole from penitentiaries, reformatories, and all parole prisoners in the county.
5. To have oversight of dependent and delinquent children, and especially those on parole or probation.
6. To have oversight of all prisoners in the county on probation.
7. To promote wholesome recreation in the county and to enforce such laws as regulate commercial amusement.
8. Under the direction of the State Board, to have oversight over dependent children placed in the county by the State Board.
9. To assist the State Board in finding employment for the unemployed.
10. To investigate into the cause of distress, under the direction of the State Board, and to make such other investigations in the interest of social welfare as the State Board may direct.

DUTIES COUNTY HEALTH DEPARTMENT

I could not, without more study, name specifically all the duties of your county health department. I *do* know that one of your primary duties is to educate the people of the county as to the prevalence of preventable diseases, the possibilities for health improvement, and the means of disease prevention and health promotion. You have the responsibility of seeing that the quarantine regulations are carried out in accordance with the State laws. You have, through your county

physician or county health officer, medical charge of county dependents found in county homes, jails, convict camps, and you must see that these county institutions are kept in sanitary condition. You administer the vaccines, advise the people of the community as to the best methods of safeguarding water supplies, screening homes and elimination of fly and mosquito breeding places. You conduct physical examination of adults, have charge of the medical inspection of school children, educate the community as to the essentials of home sanitation, prenatal and postnatal care, and you arrange tuberculosis clinics, giving nursing attention to those afflicted with the disease, and so on and on. Thus we see that the county health officer and the county superintendent of public welfare each has a distinctive and a full sized job, and that while unlike in character on the whole there are certain lines of duty where the two departments merge or cross in which mutual interests are involved and the closest coördination of effort is required.

A COUNTY HEALTH OFFICER'S POINT OF VIEW

In assembling material for this paper I did not trust entirely to my own judgment for I have never been actually engaged in the field of county work, so I went first to the health and public welfare officers of my own county of Wake, Dr. A. C. Bulla, and Mrs. T. W. Bickett, to get their points of view. Dr. Bulla, in giving his idea of the relationship that exists between the health and welfare departments says that first of all the basis of all our work is preventive, and that this relates to the normal population as well as to the abnormal; the well and the sick; the well-to-do and the indigent; the cautious and the indifferent; the mentally normal children and grown-ups as well as the mentally subnormal. It includes all classes of whatever kind or race, but more particularly the mentally and physically handicapped children and their parents, and frequently the class with which the welfare department is mostly concerned—that of delinquency and dependency. The defective and diseased population, Dr. Bulla says, requires attention from both departments, and this he considers largely preventive work. He is optimistic enough to believe that the time will come when education will have advanced to such a degree that most of our ills from which people suffer will disappear.

Selective sterilization may be regarded as a useful adjunct to any public health or public welfare program. Curative and remedial treatments are problems which confront both departments. Proper treatment in many cases would restore the abnormal to normalcy, and eliminate to some extent dependency and inability to produce and to care for themselves and others. Housing and environment, as well as the food people eat, play a part in both health and welfare work.

A COUNTY WELFARE OFFICER'S POINT OF VIEW

In summarizing the duties of the two separate departments, Mrs. Bickett also pointed out ways in which these two agencies are called

upon to join forces and bring to bear upon their mutual problems the full resources of their respective departments.

Take, for instance, the question of giving out work permits to children, all of whom must first be given a physical examination. The health officer must examine all who are sent to institutions by the welfare department, must give tuberculin tests, tests for venereal disease, free clinic treatment to those unable to pay. The health officer reports indigent cases to welfare officers, and the public welfare superintendent, in turn, tries to provide funds for cases of pellagra or tuberculosis, thus joining hands with the health officer in the rehabilitation of families. In such cases, health and welfare problems become so closely interrelated that each county officer may often times find himself doing the other person's work.

RELATION OF ILLNESS AND DEPENDENCY

In the current issue of the *Florida Welfare Progress* I'd like you to read the article on "The Relation of Illness and Dependency." Do people become dependent because they are ill or do they become sick because they are dependent? Thus do one's arguments go round in a vicious circle. Illness as an underlying cause and dependency as a predisposing cause of illness have been for many years subjects for discussion and some statistical analysis. The report of the English Poor Law Commission of 1909 says:

"Sickness is ———————— admittedly one of the chief causes of pauperism (dependency) and the more chronic its character and the longer its duration, the greater likelihood of its producing dependency. We estimate that at least one-half of the total cost of pauperism is swallowed in direct dealing with sickness."

Many of the most promising of the movements for the attempted prevention of dependency have centered in trying to improve health, on the assumption that illness is the cause of dependency. Such projects as better housing, the campaign against tuberculosis, infant welfare, visiting nursing and public health nursing were either initiated or supported, it is stated, by those acquainted at first hand with the facts of dependency and the conditions of life among the poor.

Definite correlation of illness and dependency is difficult to determine, but we do know from reports published by the United States Public Health Service, concerning certain cotton mill towns of South Carolina, covering over 4,000 workers that "a higher sickness rate was found among the members of families whose incomes were low than among families with a more favorable economic existence." We *do* know that in the influenza epidemic of 1928, apparently the lower the economic level, the higher the incidence rate.

SOCIAL WORKER AN EDUCATOR

The social worker can render a real educational service in cooperating with the health officer in overcoming prejudice and ignorance concerning hospitals. Only a few years ago it was almost im-

possible to persuade many a patient to enter a hospital because of the idea that the hospital was a place of last resort; only to be sought when the need of operation or last hope of cure compelled entry. "Why, Doctor," they would say, "that means there is no *hope* for me?" when the patient's removal from home to the hospital was advocated. Our people generally are unaccustomed to hospital service and consequently will have to be educated to use it. In this the welfare worker can be of the greatest help.

TUBERCULOSIS A COMMON ENEMY

The large number of indigent cases of tuberculosis make it evident that this is largely an economic and social problem and consequently one that greatly complicates the duties of the welfare officer, who therefore may be looked to as a public official whose influence and interest may be counted upon in any campaign for elimination of the great white plague. He can also render efficient service in giving supervision and after-care to patients returned from the State Sanatorium to homes in counties where there is no health officer or public health nurse to render this service. The families of many such will have already been in his care and he will naturally be greatly interested in assisting in their economical and social reconstruction.

As to the definite problem of tuberculosis and the relation it bears to the public welfare work, public welfare officers have spoken for themselves in reply to a questionnaire sent out from our State office several years ago. These letters present questions from social viewpoints.

Here is a case: "The superintendent of public welfare has succeeded in getting the community of L—— to aid him in caring for a woman who has tuberculosis. They built an open-air room for her. The owner of a sawmill furnished 1,000 feet of lumber, a merchant gave all the nails needed for it, and other merchants gave other articles needed for the room. The community at large is to help take care of the four children. The County Health Officer will give medical treatment and the Superintendent of Public Welfare will keep in touch with other needs."

Another case: "At H—— we had a case of a mother with three small children. She was living with her mother. Seven people slept in one room with this tuberculous woman. We did all we could to get things adjusted, to send the woman to a T.B. home or the children away, but they were cranky people and nothing could be done. After lingering a long while the mother died. Two weeks ago a brother died, and it now appears the woman's mother will die with the same disease and practically all that family will be on the hands of some charitable organization."

And still another: "We had one case of a girl who had been driven away from home by her father and had been taken in by a woman who was mentally deficient. The woman had only one room and one bed, and when we visited the home we found the girl on a bundle of rags in a corner. The room was literally alive with flies. The girl was too

weak to move, so when she expectorated the walls or floors were used. In this room were three or four baskets of clothes waiting to be sent to white homes. The woman took in washing for a living."

POINTS OF CONTACT

1. *Crippled Children:* In looking back over the files of our Public Welfare Progress, I was interested to see that in December of 1922 a State-wide census of crippled children was made by the State Board of Charities and Public Welfare and the Division of Vocational Rehabilitation. More than 600 crippled children were found and a system of clinics followed. County superintendents were made responsible in their respective counties for getting them to the clinic, and they were sometimes brought over bad roads in the mountains for a distance of as much as forty miles. The problem was to get the children and the hospital in touch, so the local clinics solved the problem. First three years, 1,572 crippled children were received and discharged. At the nine clinics held in 1923 and 1924, 495 crippled children were examined, about two-thirds of whom it was found could be benefited by treatment at the Orthopaedic Hospital. These clinics were regarded as one of the most fruitful enterprises undertaken by our State Board. Much has been done to bring the Orthopaedic Hospital to attention of those it could help and the fact emphasized that a good proportion of crippled children can be benefited by orthopaedic treatment.

2. *Midwives:* I found that in December, 1927, in Cherokee County, close coöperation with health officials enabled the superintendent of public welfare to put on a training course for midwives. Working with a list of fifty names sent by State Board of Health, the superintendent checked up the list, found some doing work not registered with the County Medical Society and County Board of Health, and asked the State Board of Health to send a nurse to conduct a six-weeks class of instruction. Eighteen women were given instruction—the importance of strict cleanliness and necessity of recognizing when to send for doctor in case of labor, being stressed. It was found that only a few of the midwives were accustomed to putting silver nitrate into eyes of the new-born babies to prevent blindness, as required by law.

The idea was that although the midwife is a poor substitute for a doctor, in a county of such isolated sections midwives are necessary and it is the duty of the County and State to see that they are trained as far as possible. In some sections where the roads are bad and travel slow, midwives are the only dependence. The doctors of that county considered that piece of work an excellent project.

In 1928 the Director of Maternity and Infancy of the State Board of Health asked the coöperation of our superintendents of public welfare in eighteen counties to promote training of midwives—counties which did not have full-time health departments.

3. *To Curb Syphilis*: In January of 1929 Dr. W. C. Linville, Superintendent State Hospital for the Colored Insane, said that 32%

of all admissions, or nearly 1/3, were due to syphilis. Same period 10% caused by pellagra. Right information and advice given to people of State about these two diseases will save them a great amount of suffering, he said. Ravages of syphilis in North Carolina cannot be estimated. 1930 death certificates showed that 184 died of disease. This is only a fraction of the number whose deaths were caused indirectly by the disease. Surely this is a problem requiring the closest coöperation between all health and welfare agencies.

"To prevent a further spread and to effectively curb the dissemination of the disease is a major, medical, public health and moral problem," says Dr. Cooper. One of the things he urged for curbing it we tried to do at the last Legislature.

"Strengthen the marriage law requiring a health certificate by rigid enforcement and broaden its scope by making it apply to both parties to the contract alike." He urged that we turn the white light of publicity in common sense discussions of means to cope with the problem.

4. *Mental Hygiene:* Just as in tuberculosis, the mental hygiene movement will require active coöperation of the whole populace. Extent of mental illness can be made more clear by stating that one out of every 325 persons in this country is in an institution for nervous or mental cases while only one out of 2,400 is in a tuberculosis hospital.

The first mental hygiene clinic by the State Board of Charities and Public Welfare was back in April, 1924, when Dr. Crane visited Henderson County and examined a number of persons thought to be mentally defective or otherwise mentally abnormal. "By having the exact mental status of persons in need of help ascertained, the superintendent of public welfare is in a much better position to secure for such persons the help which will be most effective."

5. *Illegitimacy:* And again the problem of illegitimacy is of mutual concern. 9,676 illegitimate births were reported by State Board of Health during the biennial period 1928-1929, about 250 of the 9,676 recorded, taking place in maternity homes. Insufficient effort was made by any agency, ours or any other, to establish paternity of these 9,676 children of unmarried mothers and have the fathers assume some responsibility for them. Legislation for this purpose is inadequate—$200 being the maximum amount that may be legally required of the fathers for the mothers when paternity is established. This hardly takes care of the mother during her confinement.

And in this connection may I say that we should beware of advertisements like this: "Maternity Hospital, Private, Confidential. Address P. O. Box ———." I warn the superintendents of public welfare, physicians and other social workers, for there is usually danger in these "confidential" advertisements. There are four maternity homes in the State subject to license by the State Board of Charities and Public Welfare in accordance with the law, and as a usual thing they are in a position to care for our girls: Salvation Army Maternity Home and Hospital, Wilmington; Florence Crittenton Home, Charlotte; Rest Cottage, Greensboro; and Faith Cottage, Asheville. They

protect the girl and coöperate with our State Board in making adequate provision for the child.

There are many, many more problems in which we are equally concerned, like the prison health work, for instance, in which both agencies should assume some responsibility by providing sanitary quarters, good housing facilities, humane treatment of the prisoner, and otherwise bringing about his rehabilitation.

And as a last word, may I urge a better and closer integration of all services in the interest of the general good of the county? Fed out of the same spoon through public funds (I wish we, too, had a subsidizing fund) and with the same purpose as our goal—100% efficiency in service to the community—we are to look upon our county program as a whole and in this mosaic see to it that our own piece, whether it be education, health, public welfare, home or farm demonstration agent, fits into the pattern with harmony and completeness to help form a well-rounded plan.

DISCUSSION

The Chairman: Do I hear discussion of this interesting and important subject so well presented by Mrs. Bost?

Dr. J. A. Morris, Oxford: That was the beginning of my trouble. (Laughter.) We once had a welfare officer who hailed some indigents that he knew had syphilis before the County Commissioners, and they immediately reported those cases to me and I had to go to work to save those people from being either put on the doctor and the state and the community, or being put in jail. There is a law—I don't know exactly when it was passed, but it seems to me it was in 1919—that allows those cases to be paid for at the rate of 25c for the county and 25c for the State Board of Health. I think it is Section 7203 Consolidated Statutes. You will find that thing is compulsory.

I asked the Secretary of the State Board of Health if he were in position to pay the 25c, because the doctors in my county would do it for that, but he said he was not; and so said the county; so there is a law on the statute books that has no meaning. I can't enforce it. It was enforced when we had a county welfare officer, but it is that very thing that got me into the trouble out of which I am now trying to get.

Dr. John Symington, Carthage: I should like to ask Mrs. Bost to what extent compulsion for treatment exists in the different counties throughout the state. I mean in the case of those who are bound to be infected and infective and who are advised to come under treatment. What compulsion is in existence throughout the different counties of the state?

BANG ABORTION DISEASE AND ITS RELATION TO HUMAN FEVERS

Dr. C. D. Grinnelle, Dairy Research

State College, Raleigh

Bang Abortion is probably the most prevalent and costly disease with which the dairyman has to deal. It is caused by Bacterium Abortum, a germ discovered in 1891 by Prof. Bang of Denmark. Research workers have been aggressively pursuing a program of study since Dr. Bang's discovery with a result that today many states have well organized programs in progress for the control and eradication of this malady. There are yet many important research problems in progress and we do not wish to convey the impression that our knowledge is complete in regard to this disease.

ECONOMIC IMPORTANCE

In the infected cow the germ exists in the fetal membranes within the pregnant uterus, in the udder, spleen, and lymph glands. When the affected individual aborts or supposedly calves normally the germs are eliminated in enormous numbers. Many animals eliminate the organisms from the udder either continuously or intermittently. Cooledge found twenty-seven percent of the cattle studied upon seven farms had Bact. abortus infected udders. Fitch and Lubbehusen found twenty-nine and one-tenth percent of the cows, which reacted to the agglutination test, had Bact. abortus present in the milk at the same time.

The "spreader" or the cow that discharges the infection from the uterus at calving time or in the milk is the principal source of danger. Her discharges contaminate the soil, bedding, hay or pasture and the susceptible animal picks up the infection which is transferred from the digestive tract to the blood and lymph to the pregnant uterus where they localize in the fetal membranes and fetus, producing necrosis of the placenta and chorion. Experimental evidence shows the digestive tract to be the main portal of entrance. Cotton and Buck however, have recently demonstrated experimentally the possibility of infection through the conjunctiva. These workers were also able to infect four out of seven pregnant heifers by exposing the unbroken skin to Bact. abortus. With these results we are still confronted with the problem of determining their seignificance under ordinary herd conditions.

INDIVIDUAL RESISTANCE

Most negative pregnant cows will contract the disease on exposure. Heifers seem to be more susceptible than older animals. Some individuals possess enough resistance to protect them altogether while others possess enough to act as carriers or spreaders and yet show no visible symptoms such as premature calving. Bulls in most cases

resist the infection. The experimental evidence indicates that non-pregnant females are much less susceptible than pregnant ones. Heifer calves that have not reached sexual maturity seldom become permanently infected even though nursing or associating with spreaders. The program of eradication and control is largely based upon this fact. The young negative heifer is segregated during the negative period so that she will not contract the infection from a spreader or from infected premises. As she approaches her first calving she is placed with the negative herd, thus all replacements, whether recruited from positive or negative groups, are matured as negatives, eventually making the negative herd large enough to allow the disposal of all positives. This method makes it possible to conserve valuable blood lines and build up a negative or free herd with but little cash outlay.

In the actual working out of this plan many modifications are made. In a way we are dealing with an economic question and every herd is an individual problem. Personnel, equipment, amount of infection, virulence of infection, value of animals, are all factors that are weighed carefully before adopting a plan. The progress made largely depends on the preceding facts.

Once the reacting herd is set off by itself it stands as a unit and is so studied by the owner. He naturally culls it closer on production, studies its production and breeding efficiency, and in many cases he concludes in a short time that his whole effort spent on his negative herd will prove more profitable.

This segregation plan is based on the agglutination test as a diagnostic agent. A reaction to this test means that the cow is, or recently has been, infected. It does not mean that she will abort as she may carry enough resistance to prevent abortion. In the past some have criticized the inauguration of a plan of eradication based upon it, due to the variations. The test has been improved and today is as accurate as any blood test. Its small shortcomings may be overcome by repeating it every thirty days until a definite separation can be made. A large number of negative herds have been built and protected by the use of this test. The criticisms of the test have been over-emphasized with the result that today the individual who is not anxious to determine the true status of his herd begins to discuss the small irregularities that occur in running the blood test. In our work we have found the test to check with other laboratories and to show consistent data when compared with the history of the animal.

A typical history of the infection in an individual is as follows: At birth the calf is negative. After taking the colostrum containing the abortus organism it becomes positive. The reaction during the milk consuming stage is irregular but in some cases continues to be positive. Shortly after it is taken off the milk diet it becomes negative. With few exceptions, it remains negative until breeding age and relatively few react before becoming pregnant. Exposure to the infection during this pregnancy usually means a reaction to the test and later an abortion with the elimination of large numbers of Bacterium abortum in the fetal membranes and uterine discharges. In many cases the fetal membranes are retained and unless the condition is treated pus

forming organisms multiply, producing marked tissue changes and sterility. The herd history varies somewhat with this infection. In some cases the infection travels very rapidly while in others its progress is slow. Once established most individuals in a herd become infected and abort. The raising or purchasing of replacements furnishes a continuous supply of susceptible individuals.

A PROGRAM OF ERADICATION AND CONTROL

Every breeder should know the true status of his herd in regard to this infection. This can only be determined by two blood tests with from thirty to forty days intervening. A perfect breeding history is inadequate as some individuals may be carriers and yet present a good breeding record. A knowledge of the true status of the herd is necessary for proper management. The agglutination test plus a breeding history makes it possible to work out a plan of management which will prevent a great part of the loss due to this disease. Bang's Abortion Disease is incompatible with sound dairy economics.

During the past ten years many research workers have shown much evidence of a relation of this disease in cattle to undulant fever in the human family. An analysis of the voluminous data available convinces even the most reluctant dairy enthusiast that we have here a problem which challenges our immediate attention. It demands study and a progressive program of control and finally eradication of the infection at its source. Other methods of preventing human infection may be adopted but the most efficient and far reaching will be eradication of the infection from our dairy herds. The large number of negative herds is conclusive evidence that this is possible.

We must pursue a campaign of education with our dairymen. A sympathetic but determined interest in his progress in handling this disease in coöperation with the veterinarian will bring results. In this program the propagandist, the alarmist, and the unethical competitor must be kept within due bounds or untold damage to all concerned will be the result. A damaging reflection on milk is a reflection on all milk, and it can mean nothing but a decreased consumption and we all know the results.

A positive agglutination titer should not be spoken of as a case of undulant fever unless it is combined with the correct clinical picture. Our present day knowledge indicates that actual infections are out of all proportion to infection opportunities. Man does not readily contract the disease unless special unknown factors enter into the case.

Any disease communicable to man is of public health interest. Undulant fever should be no exception. In working with this problem the veterinary profession and the leaders in the dairy work in North Carolina are ready to coöperate with you. Public health comes first, but we believe that with our present research data, a safe, economically sound, but aggressive campaign can be worked out to limit and finally eradicate this infection so that in the future the danger from this source will be negligible. As one worker has aptly stated, "Bovine Infectious Abortion is incompatible with dairy economics and if it

proves to be incompatible with human health the reason for its eradication is even more apparent."

DISCUSSION

Dr. John Symington, Carthage: I should like to congratulate Dr. Grinnelle on his paper. This is something in which we are all very much interested. In the islands of the Mediterranean, and in the countries on the shores of that sea the goats were first found to have this infection and a great many of them were treated or slaughtered in order to stamp out the disease. The disease has since been found in far eastern countries, the West Indies, and in North America. This makes one more convinced than ever of the necessity of boiling milk. In big cities, of course, the milk is sterilized or pasteurized, but this is another disease that can be conveyed by milk, just one of several diseases, and it is most important, in my opinion, to have milk boiled or pasteurized, no matter whether it is A grade or certified milk.

Dr. C. Curtis Hudson, Greensboro: I am particularly interested in this excellent paper as it has two bearings, first, from the economic standpoint of the milk producer, second, from the standpoint of the public health officials.

Some two or three years ago some of us became very much interested in the public health aspects of the undulant fever problem. I think the experience of the last few years has shown us that it is only limited in importance from the public health standpoint because while we may have a few cases of undulant fever from infected herds, we will not have many, even though we may be drinking infected milk.

From the standpoint of the dairyman, I think the state is to be congratulated on the work being done by State College and our State Veterinarian. This is a problem that every dairyman in the state should attempt to handle with his herd.

In Greensboro our dairymen are doing considerable work along this line. We have had a number of meetings and we already have some herds which were pronounced free from contagious abortion as shown by the test. We are hoping as time goes along to have more herds tested, and to have our dairymen work out these problems with the State College and our State Veterinarian.

We think it is a matter that all health officers and public health people in the state can assist in handling by calling it to the attention of their dairymen and getting them to work with the State College on this problem. (Applause.)

Dr. C. D. Grinnelle, closing the discussion: The North Carolina State Agricultural Experiment Station is coöperating with the State Division of Veterinary Medicine of the North Carolina Department of Agriculture in a research project dealing with this disease. The Experiment Station is directly interested in helping to determine the best methods of eradicating and controlling the disease.

We find that in the majority of cases we are dealing with a more latent form of infection than exists in many of the densely populated

dairy sections. At the present time about thirty representative herds are included in the study and satisfactory results are being attained.

The State Veterinarian, Dr. William Moore, is considering a much larger project in coöperation with the county and city health officers and the local veterinarians. This project will deal largely with city milk supply herds.

THE PRE-SCHOOL CHILD AND PUBLIC HEALTH

Dr. J. Roy Hege, Winston-Salem

Forsyth County Health Officer

First—A Purpose or Motive

Second—Effort or Activity

Regardless of where the child is or what he does, the first thing he has to learn is to live in this world.

As we grow up our body grows and we acquire new abilities in its use. Through the physical senses, impressions are acquired for similar growth of the mind. We learn to use tools, clothes, pencils, telephones, toys, eating utensils, soap and water, books. We acquire habits of study, observation, sleep, eating and cleanliness. By all of these daily experiences we grow. Such is the process of preparing ourself to live in a world crowded with other living things. A normal growing individual lives in an expanding world.

We have gradually established federal, state, city and county Health Departments. We have physicians, nurses, engineers, inspectors and laboratories. We have quarantine and isolation hospitals, costly sewage disposal and water purification systems. We have food inspection, garbage removal, and other public health measures.

But in spite of all these many devices, and in spite of all our scientific discoveries, there are about 2,300,000 people in this country at all times so sick that they need medical service of one kind or another. We still spend one-ninth of our total national income to regain lost health.

One important reason why we have this much sickness is that the responsibility for keeping ourselves and others in good health is not one which we can pass over entirely to some organization or to professional people like doctors, health officers, nurses, engineers and laboratory workers. All of these people have their places, and a very large one. However, they are like officers and soldiers. No war on disease these days can be won by them alone. There must be civilian participation.

This can be attained only by the slow and arduous process of daily practices of health habits by our civilian population. Our leaders of the war against disease have found that to win, the fight must be carried on, not by a few professionals, but by intelligently organized communities. The Public Health campaign of the present day is therefore based on a broadly conceived program of education of our civilian

population. It uses, with more or less persistence and intelligence, 1st, The newspapers, the health department bulletins, the special leaflet, the lectures, the radio, the poster and the exhibit. 2nd, Practical demonstrations such as pointing out or correcting physical defects in various clinics, bedside instruction in the care of the sick, training of the school child in the methods, use and benefits of first aid and early attention to illness.

The motive behind the Public Health program, like that of the program of Education is to advance the economic, moral and civic standards of our people. Economically, we wish to make them more productive. Morally, we wish to help them to live at peace with themselves and their neighbors. Civically, we wish every citizen to be a sustaining member of society and not a dependent one. Public Health and public education are dependent in many ways upon one another. Unless the health service manages to keep the child well, the teacher cannot teach him effectively. On the other hand, unless they are taught well, we have no vehicle through which we can spread our philosophy of Public Health. Thus, the two are dependent one upon the other. Through a joint program of Health and Education, we can visualize a civilization in which there will be fewer dependents and in which a large percentage will be able to carry his own load and perhaps also a portion of the joint load which failure and misfortune place upon every community.

The President in his address to the recent White House Conference said, "We approach all problems of childhood with affection. Their's is the province of joy and good humor. They are the most wholesome part of the race. The sweetest, for they are fresher from the hands of God. Whimsical, ingenious and mischievous, we live a life of apprehension as to what their opinion may be of us. A life of defense against their terrifying energy; we put them to bed with a sense of relief and a lingering of devotion. We envy them the freshness of adventure and discovery of life. We moan over their disappointments."

The fundamental purpose of a health program is to throw out those safeguards which assure them of health of mind and body. Those safeguards and services which can be provided by the community, the state or the nation, and are most often beyond the reach of the individual parent. We approach these problems in no spirit of diminishing the responsibilities and values or invading the sanctities of those primary safeguards to child life, their homes and their mothers. After we have determined every scientific fact, after we have erected every public safeguard, after we have constructed every edifice for education, or training, or hospitalization, or play, yet all these things are but a tithe of the physical, moral and spiritual gift, which motherhood gives, and home confers. None of these things carry that affection, that devotion of soul, which is the great endowment of a mother.

The most important needs of the growing child of today are: First, that he needs to be well-born. That responsibility rests with the parents and with society. The next essential to a sound body and a sound mind is proper training at home. That responsibility is largely

that of the mother and it is she that we owe greater opportunities to be well-informed of the needs of the growing child. But the greater need is that he be cared for during his pre-school and infant age. It is during this formative period of life that physical conditions develop that retard his ability to learn to the maximum capacity. It is estimated that nearly 15% of all children are improperly nourished. This is to a large extent due to the unwise choice of foods and in part due to too little food to sustain the growing body, also insanitary living conditions, poor environment and poor homes. The food problem is a most important one. There are hundreds of our boys and girls soon to go to school nutritionaly poorly prepared to learn and poorly equipped to resist disease. Underweight and malnutrition are not always due to poverty. They are very often due to carelessness, or ignorance on the part of the parents. Malnutrition is two and a half times as prevalent among country children as among city children. A much greater proportion of city than country children have milk, eggs, green leafy vegetables, raw as well as cooked and citrus foods in their daily ration. There are actually cases of rural children who cannot have milk at home unless it is skimmed first. Underweight in the child may be due to improper feeding or to the lack of rest and sleep. Some cases of underweight are due to infection such as those of the mouth, nose and throat, poor posture is usually associated with underweight. It is perhaps most often due to lack of strength and to lack of deep breathing. Then, occasionally one finds children with specific infection such as tuberculosis and hook worm, but most usually underweight children have for the most part home conditions causing their weakness, faulty posture and consequently ill health.

It is estimated that no less than three in each fifty children have impaired hearing. One in fifty have weak or damaged hearts. One in seventy-five present behavior problems. One in one hundred are mentally retarded and at least one in one hundred and fifty have tuberculosis.

In view of these facts, the need is evident to physicians, health workers and educators of a periodic and thorough-going examination of all pre-school and school children, and the correction of their physical defects and also the improvement of their home conditions. This can be accomplished only by the whole-hearted coöperation on the part of the physician, the parent and the teacher. A complete health program must include the earliest discovery of all defects in children and the securing of their correction by scientific medical care. The parents can make no greater contribution to the son or daughter, than that he be mentally and physically prepared to take advantage of what life has to offer him.

Public Health in a community must necessarily depend to a very great degree on the efficiency, knowledge and earnestness of its physicians, who must always be the leaders of health legislation and its execution. The physicians must coöperate with the community in clean-up, anti-fly and other campaigns, having to do with community hygiene, cleanliness and health. A prominent physician said: "It should be clearly understood that with some minor limitations any

community can purchase any degree of healthfulness or immunity from disease that it is willing or able to buy." If the money is wisely and intelligently spent and the expenditure directed by scientific authority, the result can be almost positively assured. The Panama Canal is perhaps the most striking example of this fact in history.

Is there any question in your mind but that the Public Health Nurses in North Carolina are doing a splendid piece of work? Last year in Forsyth County there were fifty-six less deaths under two years of age than in any year prior to the advent of Public Health nurses in this county. We have seven Public Health nurses in this county. Each of these nurses cannot help but feel that she has saved eight of these children from premature death. You know how she feels. When you have fought ignorance and human carelessness and have won a life, it makes you happy. When they look over a group of babies and children and think that there are several among them that they have snatched from the grave and handed back to the mother, they are joyful. They didn't ring any bell or blow any trumpet. They went home happy and joyful for they had rendered a service for a mother, a child and a sister woman.

I wish we knew in actual dollars and cents just what each baby saved costs the tax payers and the cost of prevention of each hour of suffering and pain. Then, the tax payers could agree to buy so many babies at a certain amount and so many hours of life free of pain and suffering at so much per hour. In such a transaction, the interesting factor would be, whose babies will we refuse to buy and who will be the one to suffer the pain? Have you ever thought of buying babies and health with Public Health knowledge? Well, the idea isn't new. The farmers and the stock men take very few chances with the calves, the pigs and other stock. I visited a dairy a few days ago owned and operated by one of our Winston-Salem men. In this dairy, there are isolation stalls with three or four calves in isolation under treatment, individual drinking fountains for the cows and many other Public Health ideas that are frequently not practiced among folks. We frequently hear ignorant people ridicule the practices of sanitation. I read an article in the daily paper a few days ago written and endorsed by a group of persons, in which they criticized the sanitary practices in our county. If the business men of our county find that it pays to practice sanitary methods in their business of dairying and general industry, why shouldn't the average citizen assume that it is sound practice?

If a certain industry in Winston-Salem finds it profitable to employ a dozen nurses to supervise the health and hazard of their employees, why would it not be wise to give the most precious asset that our county possesses, "Our Pre-school and School Children," an equal protection? We would no doubt prefer to follow the principles and practices of profit making industries to those that think the word economy means curtailment instead of judicious expenditure of tax money to preserve life, health, happiness, etc. Sickness is an unnecessary expense and brings no good returns. Sickness is almost wholly a preventable waste, if we people will learn to prevent disease. Health

is an asset. Disease a liability. Health saves money. Disease wastes money. Health makes man useful. Disease lessens their usefulness. Health brings happiness. Disease brings sadness.

The majority of the people in the world drift through life. They don't put out any effort to prevent disaster until they see the inevitable danger looming up in their faces, then they react almost to the extent of having a fit. In combating disease by preventative measures it is most often necessary to take the prophylaxic treatments sometime before its use is needed. Very few people are prejudiced against vaccines. Most of those that are so obsessed are grossly ignorant and often superstitious, believing that there is some harm in it and that the Almighty will take care of them.

We have declared from the house-tops that children from six months of age to seven years are especially susceptible to diphtheria. The records in the County Health Department show that diphtheria is a menace to this group. Since last July, we have had reported by physicians 49 cases of diphtheria, 36 of this number are six years of age, or younger; 5 are fourteen years of age, or older; 8 are of school age; 3 of the eight are from the colored schools. Thus, from a group of some five thousand children that have been protected against diphtheria with toxin-antitoxin, we have had only five cases reported. There are approximately the same number of pre-school children in Forsyth County as there are school children. From the pre-school group, we had thirty-six cases and from the protected school group, five. Had the school group not been protected, we would have expected thirty-one additional cases. This estimate is very conservative, due to the fact that the contact among school children is so much more intimate than among pre-school children. Diphtheria might have reached epidemic proportions had it not been for the protection given the school children as a routine measure.

I would like to see the pre-school group protected, and to do this it will be necessary to have the full coöperation of the parents. I like to insist on the parents taking the children to the family physician and having them treated.

The younger the child, the more fatal is diphtheria and it is noteworthy that more than fifty percent of all deaths from this disease occur in children under five years of age.

We are arranging to stock in the Forsyth County Health Department a more recent diphtheria preventive treatment called the "Toxoid." This serum gives excellent results. The purpose of stocking it is that it is more convenient in that it is only necessary to give two doses one month apart. This will be particularly useful in the Baby Clinics which are held monthly throughout the county. We expect to reach more of the pre-school group by use of this more recent preventive treatment. Toxoid is diphtheria toxin that has been treated with Formin and its toxicity reduced. The Schick test shows Toxoid to be superior to Toxin-Antitoxin mixture, in that 95 percent of the children treated were rendered negative with Toxoid, as compared with 64 precent by the Toxin-Antitoxin mixture.

My authority for this statement is the United States Public Health Service, Reprint No. 1402, published August 15, 1930. The United States Public Health Service reports that no local or general reactions were reported in children receiving Toxoid.

DISCUSSION

THE CHAIRMAN: Dr. Hudson will open the discussion.

DR. C. CURTIS HUDSON, Greensboro: I think Dr. Hege has given us a most interesting paper. The last statement he made was in regard to the use of toxoid. We are beginning to use it in Greensboro. We give two doses of the toxoid where we formerly gave three of toxin-antitoxin. In our school work we started out at the wrong age period. I think the time to immunize children to diphtheria is before they are a year old. We are sending letters to all mothers of children born in Greensboro, when they are six months old, advising them to take their children to a physician and have toxin-antitoxin given at once. This will protect them through the dangerous period. Nearly all our deaths from diphtheria are in the pre-school group. We do not prevent deaths by getting the children at school age. I think we should bend all our efforts towards getting the little fellows immunized. Get as many of them as possible protected through the family physicians or our offices, or through whatever source we can, but get them protected at the age when we can prevent membranous croup.

During the last three years every death in Greensboro has been due to membranous croup in youngsters two, three or four years old. It is very horrible to see a beautiful little boy or girl two or three years of age, die quite suddenly from membranous croup.

I think all of us appreciate Dr. Hege's interesting and valuable paper and it is a very fertile field for future work. (Applause.)

MEASLES

JOHN H. HAMILTON, M.D., Wilmington

Measles has a long but not illustrious history. Among the communicable diseases it ranks next to diphtheria as a cause of death. In North Carolina during the years 1921 to 1929 we have had over 200,000 morbidity reports of this disease and 1,921 deaths attributed to it. Progress in efforts to control it has been slow. Accurate knowledge is still meager. The solution of the measles problem is a challenge.

Undoubtedly, measles is as old as the race. We owe the first accurate description of the disease to Arabian physicians of the 10th and 11th centuries. Before that measles and smallpox were considered to be the same disease. Even after that the two diseases were frequently confused until Sydenham gave to us the following description:

"Measles generally attack children. On the first day they have chills and shivers, and are hot and cold in turns. On the second day they have the fever in full—disquietude, first, want of appetite, and white (but not dry) tongue, slight cough, heaviness of the head and

eyes, and somnolence. The nose and eyes run continually; and this is the surest sign of measles. To this may be added sneezing, a swelling of the eye lids before the eruption, vomiting and diarrhea with green stools. These appear more especially during teething time. The symptoms increase until the fourth day. Then—or sometimes on the fifth day, there appear on the face and forehead small red spots, very like the bite of fleas. These increase in number and cluster together so as to mark the face with large red blotches. They may be formed by small papulae, so slightly elevated above the skin, that their prominence can hardly be detected by the eye, but can just be felt by passing the fingers lightly along the skin.

"The spots take hold of the face first; from which they spread to the chest and belly, and afterwards to the legs and ankles. On these parts may be seen, red maculae, on, but not above, the level of the skin. In measles the eruption does not so thoroughly allay the other symptoms as in smallpox. There is no vomiting after its appearance; nevertheless there is slight cough instead, which, with the fever and the difficulty of breathing increases. There is also a running from the eyes, somnolence, and want of appetite. On the sixth day, or thereabouts, the forehead and face begin to grow rough, as the papulae die off, and as the skin breaks. Over the rest of the body blotches are both very broad and very red. About the eighth day they disappear from the face, and scarcely show on the rest of the body. On the ninth, there are none anywhere. On the face, however, and on the extremities —sometimes over the trunk—they peel off in thin mealy squamulae; at which time the fever, the difficulty of breathing, and the cough are aggravated. In adults and patients who have been under high regimen they grow livid and afterwards black."

Sydenham, in addition to giving us this most excellent description of measles, recognized that while of itself measles is a mild disease, it induces as sequelae bronchitis and pneumonia and destroys more than even smallpox itself. Morton, the great English authority immediately following Sydenham, confused measles and scarlet fever, believing measles to be a confluent form of scarlet fever.

A most important contribution to the diagnosis of measles was made by Koplik of New York in 1896. He described an eruption confined to the mucous membrane of the cheek and lips occurring before the cutaneous eruption and which he believed to be pathognomonic of this disease. According to Koplik this characteristic eruption consists "of small, irregular spots of bright red color; in the center of each red spot is seen a minute bluish white speck. There may at first be only two or three or six such rose red spots, with a bluish white speck in the center. The combination of a bluish white speck with a rose red background on the buccal and labial mucous membrane is absolutely pathognomonic of the invasion of measles. Sometimes the bluish white speck is so small and delicately colored that only in a very direct and strong daylight is it possible to bring out the above effect, but the combination is always present."

Since these spots occur in the pre-eruptive stage of the disease and are pathognomonic of the disease, special attention should be given

them when attempting to make an early diagnosis. It is possible, however, that the disease is transmissible before the appearance of these spots.

In England there was a highly fatal epidemic of measles in 1674 and although the number of deaths attributed to this disease was relatively small, the total death rate ran high. Webster says that in 1772 measles appeared in all parts of America with unusual mortality and that between 800 and 900 children died in Charleston. Early in the 19th century, especially in Scotland, it was observed that measles among adults was more frequently followed by pneumonia than was the case in children. Furthermore, it was noted that measles-pneumonia was highly fatal among recruits.

Epidemics of measles have occurred at intervals since that time. The most tragic epidemic of modern times was in the Military Training Camps during 1917-18.

The epidemic which contributed most to our knowledge of the disease occurred in the Farce Islands in 1846. Panun's study and classic report established the following facts. For 65 years prior to 1846, there had been no measles on these islands. It was brought to the Islands by a cabinet maker who left Copenhagen on March 20 and arrived in Thorshaven on March 28th in good health. Before leaving Copenhagen he had come in contact with a case of measles. A few days after reached Thorshaven he developed the disease. The infection spread rapidly and 6,000 of the 7,782 inhabitants developed the disease. All who were exposed developed the disease except those who had it prior to 1781.

Panum observed that the period of incubation is almost invariably 14 days, that all ages are susceptible, that one attack produces a definite immunity, that the disease is most readily transmitted at the time of the development of the eruption but may be transmitted during the prodromal period and before the appearance of the rash. In no instance did he find that it was transmitted during the period of desquamation.

Epidemiologists in various parts of the world have for many years observed a periodicity in epidemics of measles. The U. S. mortality statistics are of little value in trying to work out this problem. The registration area covers units entirely too large. While an epidemic wave might be at its crest in a certain community, some nearby community may be comparatively free from the disease and the result would be more or less of a dead level. When individual communities are studied over a period of years, it is possible to determine the periodicity peculiar to that community. In thickly settled communities, epidemics occur at intervals of two or three years. In more sparsely populated areas these waves occur at longer and more irregular intervals. Levy and Foster noticed that in Richmond epidemic outbreaks occurred at intervals of about three years. They were able to predict and warn against the epidemic in the winter of 1910. The plotting of morbidity reports in Wilmington indicate that we have a periodicity of approximately three years. Apparently this interval between epidemics is true for the state. On the basis of this tendency,

we will probably have an epidemic of measles sometime during the next winter.

The case mortality rate varies from a fraction of 1% to 25%, these changes from epidemic to epidemic probably being dependent upon the nature of the secondary invaders causing complications. Case mortality rates are also dependent upon the age of the patients. Children under five have a high mortality rate. From the age of 5 to 15, death rates are usually low. After 15, the mortality climbs. In North Carolina since 1921 we have had a case mortality rate of approximately 0.1%. Nevertheless, we have had 1,921 deaths from this disease during this time. In epidemic years measles has led diphtheria as a cause of death.

We are all familiar with efforts to control measles by early diagnosis and isolation. The fact that the virus is transmissible before the disease can be detected together with the fact that measles is one of the most readily communicable diseases make this method very unsatisfactory. Add to this the desire of many parents to escape the placarding of their house and the ignorance on the part of many other parents and we have results so poor that some health officers protest that this method is utterly useless. One health officer in this state said, "Treat it like the flood, dam it and let it spread." Those of us who feel that this method has some value cannot claim that we have a lower case rate than those who let it spread. We do feel, however, that the early diagnosis and isolation of patients may slow down the rate of infection. It has been demonstrated that rapid transfer of an infectious agent from one individual to another tends to increase the virulence of the organism. If we can slow down the epidemic we have a better chance of having the disease in a mild form. Another advantage of flattening out the epidemic wave is that we conserve our facilities for treatment. The same number of doctors, nurses, and hospital beds can care for more patients in eight months than they can in eight weeks. The community which practices isolation of measles patients may have just as many cases as the community which just lets it spread, but they are likely to have a milder epidemic and a longer period of time in which to treat the patients.

We might say that early efforts toward scientific control of measles began in 1757 with the experiments of Monro who wrote as follows: "How successful inoculation of smallpox has turned out is known to all, but I regard it as altogether certain that inoculation of measles will be much more useful and successful.

"For it is well known how liable this disease is to infest the lungs, and how great destruction it causes there. This seems in the first place to be due in large part to the contagion which flies about in the air, and is drawn into the lung cells, and persistently clings to them, and causes a cough there, or in other words, excites an attempt by nature to drive off the noxious matter. If measles were really to be induced by inoculation artificially produced, it is very likely that the lungs would be more free from inflammation, and in general the disease would attack the skin only. If this should turn out so what a great profit and utility it would bring to mankind."

One year later Home of Edinburg reported that he had inoculated 15 persons with this disease and had succeeded in most instances in producing the disease in a modified and mild form. He made incisions in the thickest part of the measles eruption and soaked up in cotton the blood which came from these. He then made similar incisions in the arms of susceptible persons and bound over the wounds the blood saturated cotton keeping it in place for three days. About ten years later Cook stated that many physicians had followed Home's method with success but he recommended a different procedure. Still later Spry claimed that he had inoculated susceptible persons with measles by using linen thread which had been drawn through measles papules. In 1842 Katona reported that he had inoculated 1,122 persons, of whom 93% developed the disease. In 1850 McGirr reported that he had inoculated children successfully by Home's method. In 1905 Hektoen reviewed the literature of this subject and came to the conclusion that there was no adequate evidence that measles had ever been transferred by the above methods.

Hektoen made two inoculations with blood cultures. The blood was drawn from the measles patients and incubated for twenty-four hours in ascites broth. After incubation these cultures remained apparently sterile but on injection into susceptible persons induced the disease. In 1911 Anderson inoculated nine rhesus monkeys with defibernated blood from four cases of measles. Of the nine animals inoculated only four gave evidence of reaction. In 1921 Blake and Trask came to the conclusion that the virus of measles can be transferred from man to monkey with the production of a fairly typical disease in the animal. They employed nasopharyngeal washings from patients in the pre-eruptive or early eruptive stages of the disease. These washings both filtered and unfiltered were introduced into the tracheas of monkeys. After an incubation period of from six to ten days, the monkeys developed typical enanthems. The only symptoms lacking in comparison with those manifested in man were those of rhinitis and bronchitis. These investigators have also transmitted measles from monkey to monkey by injecting citrated blood from an infected animal to a susceptible animal. Unfortunately, however, no practical method has as yet been developed to produce attenuated measles by inoculation.

In 1918 Nicolle and Conseil recommended the use of serum from convalescent patients in the control of measles. A great number of authors have reported favorably on this method. It is now well established that convalesment measles serum is very effective in preventing measles when given in sufficient dosage in the course of the first five days of the incubation period and in attenuating the disease when given in either smaller amounts or somewhat later in incubation period. In spite of its great clinical value convalescent serum has not come into general use chiefly because of the difficulty in procuring it. Cases of measles in adults are uncommon. Parents are usually reluctant to permit blood to be withdrawn from children especially during convalescence. For this reason investigators have been striving to find

another anti-measles agent that is available and at the same time effective.

The permanent immunity that almost invariably follows one attack of measles and the fact that a mother who has had measles imparts to her offspring sufficient antibodies to render the infant immune for the first few months of life indicate that most adults have an appreciable amount of these immune bodies in their blood. It was therefore logical that the value of adult blood in the prophylaxis of measles should be investigated. In 1920 Degkwitz injected adult serum into seven children who had been exposed to measles, six receiving 30 cc. and one 20 cc. of serum. Four of the seven developed measles but in an attenuated form. One year later Rietschel reported good results from the use of whole adult blood. During an outbreak of measles that occurred in an asylum harboring children from one to two years of age, Rietschel injected 20 cc. of adult whole blood into three exposed children and five served as controls. The three treated children came down with markedly attenuated measles, whereas the five who remained untreated developed typical measles complicated in two instances by broncho pneumonia. Later Salomon, Gerlach, Hilsinger, Kovacs and others abroad as well as Zingher, Karelitz, Levin, Bivings, Bader and Van Cleve in this country reported favorable results in the use of adult whole blood or serum as a prophylactic measure against measles.

In a recent article Barenberg, Lewis, and Messer show more strikingly the value of the new method. Their article is based upon experience during the epidemic of measles in the Home for Hebrew Infants in New York. They compare their results with those of two previous outbreaks in the same institution, one occurring in 1917 and the other in 1924. "In 1917 no prophylactic treatment was employed. Of 272 children exposed, 238 came down with measles, an incidence of 87%. Complications occurred in 118 children, or 47% of the cases, and consisted of pneumonia and otitis media. There were 19 deaths, a mortality of 8%.

During the 1924 epidemic convalescent whole blood was employed. The incidence of the disease was not diminished but a large number of children developed attenuated measles and as a result there was a considerable reduction in the complications and mortality. In the 1929 epidemic adult blood prophylaxis was employed on a large scale and the incidence of the disease was reduced to 42%. The complications were also less numerous and milder than the 1924 epidemic. Only one death occurred. Those children who were untreated had the usual percentage of complications." The authors conclude, "First: Convalescent measles serum is the most effective prophylactic measure against measles but its application is limited because of its lack of availability; Second: The blood of normal adults who have previously had measles is of great value in bringing about an attenuated form of measles and is the most practical method of prophylaxis; Third: We fail to confer protection or to mitigate the disease by means of immune goat serum (Tunnicliff)."

The adult blood method of prophylaxis is simple. The most suitable donor is one of the parents. If only one of the parents has had

measles that one should be selected as the donor. About 30 cc. of blood is drawn from a vein at the elbow into a sterile syringe. The blood may be citrated or defibrinated but if injected immediately after withdrawal need not be treated. Half the blood is injected intramuscularly into the child's right buttocks and the other half into the left. There are no ill effects. It is not necessary to type the blood of the parent or the child. In children under five years of age if it is deemed advisable to prevent measles inject double the amount of blood. It should be remembered, however, that with this method the object is not to prevent measles but to assure a mild attack.

Since it is probable that we will have an epidemic of measles within the next few months, we should consider the value of control measures. Early diagnosis and isolation offer hope for little more than a slowing down of the epidemic. Convalescent serum has demonstrated its value in preventing measles for a period of approximately four weeks after administration. It offers no protection after that time unless the child has had attenuated measles. It is difficult to find donors for more than a few patients. Since this method has definite indications, some plan should be devised for making it available. Health Departments can at least furnish physicians a list of adults and larger children who are convalescing from measles. This method has been used locally to a degree sufficient to be familiar to a considerable number of our people. The use of whole adult blood is simple. If, through its use we can have a high percentage of attenuated measles without complications we have rendered a useful service to the community. The person who has had attenuated measles has lifetime immunity quite as much as if he had had regular measles. Whatever value it has ought to be available to a large percentage of our people. It appears to offer an opportunity for a big step forward in community protection against measles.

DISCUSSION

THE CHAIRMAN: The subject so well presented by Dr. Hamilton is open for discussion. I recognize Dr. C. Curtis Hudson.

DR. C. CURTIS HUDSON, Greensboro: I read a paper on this subject some three years ago at a former meeting in Durham, concerning our experience in Greensboro with immune adult serum from persons who had recovered from measles. I reported on something like two hundred patients who had been given doses of immune serum and gave the results. Measles is a preventable disease. The prevention of outbreaks of measles is probably not so easy to accomplish, but I think we can prevent the fatalities from the disease because most of our deaths occur during the first, second and third years of life. After five years we have very few deaths from measles, just as with whooping cough. About 72 or 73 percent of the deaths from whooping cough occur in the first two years of life. In measles the percentage is not quite so large, but practically all deaths occur in small children and especially in weak and debilitated children. We have in convalescent serum and in whole adult blood as described by Dr. Hamilton a method by which we can prevent nearly all deaths from this cause.

In some places where we have laboratory facilities, I think that the use of convalescent serum is perhaps more advisable because we give a small dose, 4 to 6 cc. of immune serum, such as we give in diphtheria antitoxin. This will prevent the development of measles if given before the sixth day after exposure, and from the sixth to the ninth day it will cause the development of attenuated types of the disease. It is preferable to give it at that time because those children given the serum at that time have practically no symptoms, just a slight coryza, the eyes may turn a little red and there is a mild rash which you would not call measles but for the fact that they have been exposed to it. The symptoms are very mild and the fatalities are eliminated.

In our next outbreak of measles, I think we will continue to use the immune serum and also will advise physicians to immunize children by the whole adult blood method. I am rather of the opinion, however, that the use of whole blood will not be quite so practical as it would seem; in the first place, any of you who have taken blood for the purpose of separating the serum know what 50 cc. syringe looks like and the size of the needle you have to use in drawing out 30, 40, or 50 cc. of blood and when we attempt to inject that quantity into a child again we find the parents may be worried. We may get by with one case in the neighborhood, but by the time the mother gets through telling the neighbors what a needle and what a syringe we used in immunizing the child, we fear though it will be difficult to get others to take in that neighborhood. However, it is something you can advise and it should be used.

I certainly congratulate Dr. Hamilton on the excellence of his paper. He has given us a very complete discussion on the subject of measles and no doubt we can do more in protecting our communities, by working with our physicians and preventing the bad effects of this serious disease. (Applause.)

Dr. A. C. Bulla, Raleigh: Human convalescent serum for the prevention of measles is being used, and I trust that as years come and go, its usefulness will increase. It is being used successfully for the prevention of measles or for modifying the disease. Dr. Hudson, who is here today, has had more experience in the prevention of measles in state institutions than any other health officer in the state.

Personally, I think that for some time to come it will not be applicable or practicable to prevent epidemics among large populations. However, there is one thing about human convalescent serum that is practicable and should be used more by practicing physicians, and that is the use of this serum with children, in whom, for any reason, the disease would increase the possibility of death, who due to previous attacks of disease might be in a weakened condition and unable to withstand another infectious disease. If a disease can be prevented in such a person, then I think it behooves the physicians to exercise this right in preventing the disease from occuring and possible death ensuing. If it is made available for this purpose, and it should be, the physicians of the state can reduce the mortality from this disease to a new low level.

PUBLIC HEALTH IN RELATION TO CANCER

Dr. H. H. Bass, Durham

Cancer is one of the oldest diseases. It was well known to the Egyptians; it is mentioned in the earliest writings of India; and it no doubt occurred among the most primitive types of man.

The disease occurs in birds, animals and fishes, as well as man, and growths of much the same nature are common in the vegetable kingdom.

All the present races of man are affected by it, although it is apparently more common among the civilized races whose average life is longer.

No age is exempt from cancer; babies are born with it and the oldest people die of it. It is largely a disease of adult life, however, occurring chiefly between the ages of forty and seventy.

More than 120,000 people died of cancer in the United States during 1929. This equals about ten percent of the total deaths from all diseases in this country for that period.

As a principle cause of death cancer moved from sixth place in 1900, to second place in 1929, and was exceeded only by heart disease.

The official cancer death rate in this country has climbed steadily upward in recent years, showing an annual increase of about two percent.

Authorities generally agree that the number of cancer cases existing in a given area may be roughly estimated as three times the number of cancer deaths occurring.

Cancer prevention resolves itself into a problem of common sense. It never (as a rule) develops in previously healthy tissue. It usually starts in organs affected by chronic irritation, inflammation or other disease which may have been present for months or even years.

There are many things that enter in the study of cancer control and when we consider an annual toll of 120,000 lives in the United States, cancer should be recognized and accepted as a major health problem. Control measures may be divided broadly into four phases: lay education, professional education, the promotion of diagnostic and therapeutic facilities, and research.

The dissemination of correct information regarding cancer is the principal object of lay educational work. The general lack of this knowledge on the part of the public amply justifies a sanely conducted educational program. There is no evidence that a so-called "cancerphobia" is produced by proper forms of publicity. There is distressing evidence that an ignorance of a few simple early signs, a failure to appreciate the killing effects of delay, an inability to distinguish between good and bad treatment and a feeling that the affliction is a stigma, are each and all responsible for a vast amount of unnecessary suffering and death.

The present standards of medical practice in the diagnosis and treatment of cancer are very inadequate. To the average physician

early cancer is a comparatively unrecognized disease, while late cancer is a hopeless problem.

The more satisfactory treatment is available only at the hands of a relatively few cancer specialists who possess the requisite skill and have access to the necessary institutional facilities. Operative technique in the most skillful hands, has nearly reached the limit of its possibilities in certain regions of the body. Radium and X-rays are increasing in usefulness; but an adequate knowledge of their correct application is still restricted, and their full value has not yet been established.

The knowledge of the medical profession regarding cancer can be increased in general by a more extensive grouping of cases for clinical study in properly equipped institutions, the conducting of post-graduate courses for the general practitioner, a greater emphasis upon the subject in the curricula of medical schools and the creation of a more comprehensive cancer literature.

The present facilities for the diagnosis and treatment of cancer in this country are likewise inadequate. There are a few fully equipped and properly staffed special cancer institutions. An adequate cancer service is lacking in most general hospitals, of even the highest grade. A large proportion of the entire population are not within reasonable travelling distance of desirable therapeutic facilities.

The continued development of special facilities in general hospitals and the establishment of cancer institutes would make a distinct contribution to the progress of cancer control.

Cancer research may be divided into two types, clinical research and fundamental research: Clinical research is concerned with the gross manifestation of the disease, such as its natural duration, its distribution by site, age, sex, race, and similar statistical inquiries; and fundamental research is concerned with the inherent biological characteristics of the disease, such as its essential etiology, its pathology, its vital reactions to various physical and chemical stimuli, and similar problems.

Clinical research has contributed to the control of cancer by augmenting the knowledge regarding its occurrence and behavior. Fundamental research has thrown some light upon the reaction of cancer cells to various stimuli and their response to diversified environment; but it has failed thus far to establish an early diagnostic test and has left unsolved the problem of the essential cause. Despite this ignorance, by an intelligent application of the knowledge which now exists cancer can to an appreciable extent be controlled, and to a much greater extent than at the present time.

Irrespective of the numerous cancer cures that have been brought forward in the last decade, such as serums, lead, gold, etc., which have been found to be inadequate and have not stood the test of time. The only effective methods of treatment of cancer today are surgery, radium and X-rays, in the hands of skilled physicians.

The relative merit of these methods depends upon the variety and the location of the cancer to be treated. In some cases surgery is the most suitable method. In others, radium or X-rays are preferable.

Sometimes a combination of surgery and X-rays or radium gives the best results. The choice of method in every case should be a matter of medical judgment.

The family physician is usually the first person with whom the patient makes contact. Upon his judgment the ultimate fate of the patient often depends. In general he finds it necessary to refer the case to a specialist who is more familiar with the disease and possesses the required skill and suitable equipment for its accurate diagnosis and appropriate treatment.

The early application of proper treatment is very necessary for the cure of cancer. In some forms of cancer the chances for a favorable result decrease as much as sixteen percent with each month of delay. Faced by such a rapidly advancing disease, it is quite evident that a case which may be readily curable during the first month becomes hopeless within six months.

The reasons for delay in the application of proper treatment of cancer are numerous. In the first place the cancer may be the kind which presents no early symptoms; in such a case nobody is at fault. In the second place the patient may delay in consulting a physician or fail to act upon the advice of the physician; in such a case the patient is to blame. In the third place the physician may not immediately recognize the condition as cancer, or he may not be competent or equipped to treat it correctly; in such a case the physician is obviously responsible.

The pessimistic attitude regarding cancer sometimes assumed by physicians as well as patients is often unwarranted. Many cancers can be cured by early diagnosis and early treatment. There are actually thousands of men and women in this country today (1931) who have had cancer, who have been successfully treated, and who have remained free from any recurrence of the disease for periods of five, ten, fifteen and in some instances even twenty years.

Massachusetts had the largest mortality from cancer of any state in the union in 1929. A death rate increasing from 116.1 in 1920 per 100,000 population to 129.1 in 1929. North Carolina showed the third lowest cancer mortality of any of the states except Tennessee and South Carolina. There were 1201 recorded deaths from cancer in North Carolina in 1922 and 1610 in 1929. We believe the great difference between these two states in cancer mortality is that Massachusetts is populated by a large percentage of aliens (or foreign born). While these three Southern States have less foreigners than any states in the Union, however, their annual increase bears the same proportions as the other states.

Now in closing this paper let me call your attention to these two facts: First, we do not know the true cause of cancer, but we do know under what condition cancer develops. Second, cancer never develops out of a clear sky and in a majority of instances it develops at the site of some old low grade chronic infection. These two facts alone are of sufficient reason why cancer is a public health problem. Our people should be taught the dangers of neglected chronic infections or of any chronic irritant irrespective of its location or kind.

Our physicians should be ever mindful of the conditions under which cancer develops, irrespective of the size and location of the lesion—there may be a cancer present. To control cancer we must prevent cancer.

No further business appearing, on motion the Section adjourned.

WOMAN'S AUXILIARY

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DURHAM

April 21, 22, 1931

COMMITTEE ON ARRANGEMENTS

Mrs. Foy Roberson, *President Durham County Auxiliary*
Mrs. William Watkins, Mrs. Forbes, Mrs. Hanson Pruss, Mrs. Waldo Boone, Mrs. Banks Anderson, Mrs. Albert Powell.

PROGRAM

TUESDAY

1:00 p.m.—Luncheon—Executive Board
1:00 p.m.—Luncheon—Duke University
2:00 p.m.—Annual Meeting
4:00 p.m.—Tea—Duke University
5:00 p.m.—Drive

WEDNESDAY

11:00 a.m.—Bridge Luncheon—Hope Valley Club
9:00 p.m.—Annual Medical Society Ball

DISTRICT REPORTS

First District—Bertie, Chowan-Perquimans, Currituck, Gates, Hertford, Northampton and Pasquotank-Camden-Dare.
Councilor—

Second District—Beaufort, Carteret, Craven, Hyde, Jones, Lenoir, Martin, Pamlico, Pitt and Washington-Tyrrell.
Councilor—

Beaufort—Mrs. H. W. Carter, President.
Mrs. Ellis Winstead, Belhaven, 1st Vice-Pres.
Mrs. John Bonner, Aurora, 2nd Vice-Pres.
Mrs. Jack Nicholson, Washington, Secretary.
Mrs. Ed. Brown, Washington, Treasurer.
Mrs. Dave Tayloe, Jr., Washington, Corres. Secretary.

Pitt—Mrs. K. B. Pace, Greenville, President.
Mrs. S. M. Crisp, Greenville, Secretary-Treasurer.

Lenoir—Mrs. C. F. West, President.
Mrs. B. C. West, Secretary-Treasurer.

Third District—Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender and Sampson.
Councilor—Mrs. J. T. Hoggard, Wilmington.

BLADEN—
Mrs. E. C. Bennett, Elizabethtown, President.
NEW HANOVER-PENDER-BRUNSWICK—
Mrs. J. B. Sidbury, Wilmington, President.
Mrs. J. F. Robertson, Wilmington, Treasurer.
Mrs. David Murchison, Wilmington, Secretary.
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Mrs. J. P. Henderson, Jacksonville, President.
Mrs. E. L. Cox, Jacksonville, Secretary-Treasurer.
DUPLIN—
Mrs. J. W. Carroll, Wallace, President.
Mrs. J. D. Robinson, Wallace, Secretary-Treasurer.
SAMPSON—
Mrs. J. S. Brewer, Roseboro, President.
Mrs. Paul Crumpler, Clinton, Secretary-Treasurer.

Fourth District—Edgecombe, Greene, Halifax, Johnston, Nash, Wayne and Wilson.
Councilor—Mrs. Malcom Bizzell, Goldsboro.

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Mrs. J. H. Harper, Snow Hill, President.
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Mrs. W. H. Smith, Goldsboro, President.
NASH—
Mrs. L. W. Kornegay, Rocky Mount, President.
WILSON—
Mrs. E. L. Strickland, Wilson.

Fifth District—Chatham, Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Robeson and Scotland.
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Mrs. L. L. Williams, Fayetteville, President.
ROBESON—
Mrs. J. O. McClelland, Maxton, President.
HOKE—
Mrs. R. A. Matheson, Raeford, President.

Sixth District—Alamance - Caswell, Durham - Orange, Franklin, Granville, Person, Vance, Wake and Warren.
Councilor—Mrs. G. H. Macon, Warrenton.

DURHAM—
Mrs. Foy Roberson, Durham, President.
WARREN—
Mrs. G. H. Macon, Warrenton, President.

ALAMANCE-CASWELL—

Mrs. R. E. Brooks, Burlington, President.

WAKE—

Mrs. A. S. Oliver, Raleigh, President.

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Councilor—

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Councilor—

GUILFORD—

Mrs. C. E. Reitzel, High Point.

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Third Vice Councilor—Mrs. J. M. Buckner, Swannanoa.

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Mrs. Thos. R. Huffines, Vice-President.
Mrs. R. A. White, Secretary.
Mrs. G. W. Murphy, Treasurer.

CHEROKEE—

Mrs. J. N. Hill, Murphy, President.
Mrs. E. E. Adams, Murphy, Vice-President.
Mrs. W. C. Morrow, Secretary-Treasurer.

POLK—

Mrs. A. J. Jervey, Tryon, President.

ANNUAL MEETING

The Ninth Annual Meeting of the Auxiliary to the Medical Society of the State of North Carolina was held in the Washington Duke Hotel, Durham, April 21st, 1931, at 2:00 P. M., with Mrs. W. B. Murphy, President, presiding. The Invocation, which was made by Dr. D. H. Scanlon, Pastor of the First Presbyterian Church, Durham, was followed by words of welcome from Mrs. Foy Roberson, President of the hostess auxiliary. In the absence of Mrs. Roscoe McMillan, who was to have responded, Mrs. Murphy assured the Durham ladies of our great joy at being able to attend the 1931 meeting.

The minutes of the preceding meeting were read and approved, but, owing to lack of time, the roll call was dispensed with. Mrs. G. H. Macon, First Vice-President, then took the chair while Mrs. Murphy gave her address, which is printed in full below.

PRESIDENT'S ANNUAL ADDRESS

Mrs. W. B. Murphy, Snow Hill, *President*

At the close of my year of service as President of the Woman's Auxiliary to the North Carolina Medical Society, I confess that "we have done those things which we ought not to have done and we have left undone those things which we ought to have done," but I do not feel impelled to continue "and there is no health in us," because in this year of delightful contacts with Doctors and Doctors' wives in every part of our great state I have found inspiration sufficient to illumine my path always and for the honor which you conferred upon me a year ago I am deeply grateful.

The Woman's Auxiliary literally "hitched its wagon to a star" when at the first Board meeting in May, 1930, with the approval of Medical Advisory Board and President State Medical Society it added to the support of a bed at the State Sanatorium a constructive health program in the public schools of the state and the raising of a $10,000 Loan Fund. With a membership of only a few hundred we have spent around a thousand dollars for health work and have raised $642.25 for the Loan Fund. The results have not been all we hoped for but real service has been rendered for health betterment and a very substantial beginning has been made for the Loan Fund. To every Doctor and every Doctor's wife who contributed and to Mrs. W. N. Reynolds and Mrs. Cameron Morrison, our generous friends outside the profession, I would say, "God bless you every one." I do not believe there is any finer thing we as an Auxiliary can do than to work with increased enthusiasm for the completion of this $10,000 Loan Fund. Education is the great hope of the state and upon the women of the Medical Auxiliary I lay the solemn responsibility to carry on the good work which you have begun. Until we realize that life today as never before means service, we are out of step with the times.

"He did good toward God, toward his Country and toward all mankind," inscribed on the tomb of the unknown British soldier in West-

minster Abbey, should be the ideal of every up-to-the-minute citizen of the world today.

The raising of a $10,000 Loan Fund is no small undertaking, but it can be done unless we are like the man I overheard on the street of a neighboring town who, when a friend clapped him on the back and said, "What are you doing with yourself these days?" replied "Jes as little as I kin git by with."

I do not believe that high taxes, reduced incomes or bank failures can down the greatest people in the world. The period of financial depression through which we are passing is not comparable to the condition which obtained in France at the close of the World War and when I visited France eight years after the war ended, but for the cemeteries and the battle-scarred area left by the government on purpose to show the world what France had suffered, one could not have told there had been a war. It's work that restored France and work will restore prosperity to America.

A great American physician said recently, "Medicine is just in its infancy and there is a place for all who would work in it to plan for the men of the near future."

Probably the most conspicuous case of unselfishness on record is that of a Greene County husband (I'm sorry I cannot claim him for the medical profession) who remarked to his wife when she had with fear and trembling confessed having done two hundred dollars worth of damage to the family car, "Well, my dear, you're not the first person who ever had an automobile accident."

Doctors' wives of North Carolina, until you've raised this $10,000 Loan Fund; until there is an eight months school term for every child; a hospital and a public library in every county; until unsightly bill boards shall no longer mar the landscape; until there are running water, electric lights, books, and a cow, garden and flowers in every rural home; until we shall as a state really love the things that are beautiful *you've* got a chance to serve.

"The things that haven't been done before,
  Those are the things to try!
Columbus dreamed of an unknown shore
  At the rim of the far-flung sky.
And his heart was bold and his faith was strong
  As he ventured in dangers new,
And he paid no heed to the jeering throng
  Or the fears of the doubting crew.
The many will follow the beaten track
  With guide posts on the way.
They live and have lived for ages back
  With a chart for every day.
Some one has told them it's safe to go
  On the road he has travelled o'er,
And all that they ever strive to know
  Are the things that were known before.
A few strike out without map or chart
  Where never a man has been,

From the beaten paths they draw apart
  To see what no man has seen.
There are deeds they linger alone to do
  Though battered and bruised and sore
They blaze the path for the many who
  Do nothing not done before.
The things that haven't been done before
  Are the tasks worth while today.
Are you one of the flock that follows, or
  Are you one that shall lead the way?
Are you one of the timid souls that quail
  At the jeers of a doubting crew,
Or dare you, whether you win or fail,
  Strike out for a goal that's new?''

(Mrs. W. B.) Mary Colvin Murphy.

Next came the report of officers.

The Treasurer, Mrs. A. B. Holmes, made the following report:

REPORT OF TREASURER OF THE AUXILIARY TO THE NORTH CAROLINA MEDICAL SOCIETY

Receipts

Dues 1929-1930 (Mrs. D. R. Perry)	$ 12.00
Back dues	5.00
307 members	307.00
Donation, Lumberton for bed	20.00
Donation, Fairmont for bed	6.00
Rowan County for bed	38.59
	$388.59

Disbursements

Rouse Printery (envelopes and paper)	$ 15.00
Mrs. W. B. Murphy (telephone calls)	1.70
Rouse Printery (100 bulletins)	17.50
Lunch, Miss Whittington at Raleigh	1.00
Mrs. W. B. Murphy (telephone and postage)	2.50
Mrs. A. B. Holmes (mailing books to Councilors)	2.50
Mrs. W. B. Murphy (telephone calls)	3.80
A. M. A. dues	57.50
Refund to Mrs. W. P. McKay	1.00
Dr. P. P. McCain	130.39
Mrs. W. B. Murphy (typing and telephone calls)	1.60
Mrs. W. B. Murphy (typing President's address)	.80
*Dr. P. P. McCain	78.05
	$313.34
Balance	$75.25

*Paid bed to April 21, 1931.

Fairmont, North Carolina,
April 21, 1931.

LOAN FUND OF THE AUXILIARY TO THE NORTH CAROLINA MEDICAL SOCIETY

Mrs. Kate Reynolds, Winston-Salem	$100.00
Mrs. Cameron Morrison, Charlotte	100.00
Guilford County Auxiliary	93.25
Durham-Orange Auxiliary	57.00
Wake County Auxiliary	39.00
Cumberland County Auxiliary	31.00
Rowan County Auxiliary	29.00
New Hanover County Auxiliary	19.00
Beaufort County Auxiliary	18.00
Green County Auxiliary	17.00
Dr. S. M. Harrell, Tarboro	10.00
Mrs. Malcolm Bizzell, Goldsboro, prize	5.00
Mrs. W. H. Cobb, Goldsboro, prize	5.00
Dr. D. B. Cobb, Goldsboro	5.00
Mrs. J. H. Harper, Snow Hill, prize	5.00
Mrs. R. S. McGeachy, Greenville, prize	5.00
Mrs. W. B. Murphy, Snow Hill, prize	5.00
Mrs. J. M. Parrott, Kinston, prize	5.00
Dr. H. A. Royster, Raleigh	5.00
Dr. J. B. Sidbury, Wilmington	5.00
Mrs. Will Spicer, Goldsboro, prize	5.00
Mrs. C. F. West, Kinston, prize	5.00
Lenoir County Auxiliary	4.00
Dr. and Mrs. W. C. Ashworth, Greensboro	2.00
Dr. and Mrs. K. G. Averett, Fayetteville	2.00
Dr. and Mrs. A. C. Banner, Greensboro	2.00
Dr. and Mrs. R. P. Beckwith, Rosemary	2.00
Dr. and Mrs. E. C. Bennett, Elizabethtown	2.00
Dr. and Mrs. T. M. Bizzell, Goldsboro	2.00
Dr. and Mrs. M. E. Bizzell, Goldsboro	2.00
Dr. and Mrs. R. S. Brewer, Roseboro	2.00
Dr. and Mrs. D. H. Bridger, Bladenboro	2.00
Dr. and Mrs. J. P. Brown, Fairmont	2.00
Dr. and Mrs. D. A. Burress, High Point	2.00
Dr. and Mrs. D. B. Cobb, Goldsboro	2.00
Dr. and Mrs. W. H. Cobb, Goldsboro	2.00
Dr. and Mrs. V. A. Davidian, Smithfield	2.00
Dr. and Mrs. W. W. Gibson, High Point	2.00
Dr. and Mrs. K. B. Geddy, High Point	2.00
Dr. and Mrs. A. H. Hayes, Fairmont	2.00
Dr. and Mrs. E. C. Holden, High Point	2.00
Dr. and Mrs. A. B. Holmes, Fairmont	2.00
Dr. and Mrs. C. C. Hudson, Greensboro	2.00
Dr. and Mrs. H. B. Ivey, Greensboro	2.00
Dr. and Mrs. Floyd Johnson, Whiteville	2.00
Dr. and Mrs. J. M. Lilly, Fayetteville	2.00
Dr. and Mrs. G. H. Macon, Warrenton	2.00

Dr. and Mrs. R. S. McGeachy, Greenville	$ 2.00	
Dr. and Mrs. W. L. McManus, Greensboro	2.00	
Dr. and Mrs. K. B. Pace, Greenville	2.00	
Dr. and Mrs. J. M. Parrott, Kinston	2.00	
Dr. and Mrs. L. E. Ricks, Fairmont	2.00	
Dr. and Mrs. T. H. Royster, Roanoke Rapids	2.00	
Dr. and Mrs. R. G. Rozier, Cerro Gordo	2.00	
Dr. and Mrs. Joseph Shehan, Greensboro	2.00	
Dr. and Mrs. C. F. Strosnider, Goldsboro	2.00	
Dr. and Mrs. John Spicer, Goldsboro	2.00	
Dr. and Mrs. William Spicer, Goldsboro	2.00	
Dr. and Mrs. N. S. Stuart, Charlotte	2.00	
Dr. and Mrs. B. Weathers, Rosemary	2.00	
Dr. and Mrs. C. E. Wilkerson, High Point	2.00	
Mrs. Paul Crumpler, Clinton	1.00	
Mrs. E. M. Crisp, Greenville	1.00	
Dr. E. T. Hollingsworth, Goldsboro	1.00	
Mrs. Henderson Irwin, Eureka	1.00	
Dr. C. A. Julian, Greensboro	1.00	
Dr. Russel O. Lyday, Greensboro	1.00	
Mrs. J. B. Person, Selma	1.00	
Mrs. E. C. Person, Pikeville	1.00	
Mrs. E. T. Sessoms, Roseboro	1.00	
Mrs. J. L. Sowers, Lexington	1.00	
Mrs. O. E. Underwood, Roseboro	1.00	
	$649.25	
	2.00	
	$651.25	
	8.00	
Total		$659.25

A child, Daisy Andrews, age 5, of Carrboro, was put on the Auxiliary bed in place of Miss Stevens, who was being cared for by a relative.

The Councilors reported as follows:

First District: No report.

Second District: Three counties organized.

Third District: Meetings held with Mrs. J. D. Farrior, Duplin County; Mrs. J. B. Sidbury, Wilmington; District meeting at Wilmington, Mrs. J. F. Robertson, Wilmington, and also one in Sampson County, New Hanover, Brunswick, and Pender have 100 percent memberships.

Fourth District: Amount of money sent in, $39.00 for dues and $37.00 for loan fund.

Fifth District: Hoke 100 percent. Cumberland and Robeson have frequent meetings with good programs.

Sixth District: Durham has 22 paid members and has given $57.00 to the loan fund; has stated meetings and gives annual reception for Watts Hospital graduating class. Wake, organized since Christmas, has had two meetings; 18 paid members, and contributed $39.00 to the loan fund. Alamance-Caswell had good meetings, sent magazines to Sanatorium, helped furnish free lunches, donations made to Red Cross, encouraging city incinerator project.

Seventh District: No report.

Eighth District: Guilford has done splendid work. Forty-two paid members, contributed $117.25 to the loan fund. Was hostess to ladies at District meeting, having an elaborate program of entertainment; are working on Hygeia subscriptions.

Ninth District: Rowan contributed $29.00 to the loan fund and $32.59 to the bed fund. Have raised money from bridge parties, selling magazine subscriptions and rose bushes.

Tenth District: Three counties organized the past year. District meeting well attended at Murphy.

The Auxiliary was then most delightfully entertained by three vocal numbers by Miss Margaret Whittington, charming daughter of Dr. W. W. Whittington of Snow Hill. Miss Whittington also gave a second series later in the program.

Dr. Murphy, President of the Medical Society, then brought greetings from the State Society. Dr. Hubert Royster was unavoidably detained from the meeting. The feature of the session was the most wonderful address by Dr. Morris Fishbein, editor of the A. M. A. Never has the Auxiliary been favored by a man who could say so much in as few words. Dr. Fishbein urged great care in making programs, not only for local auxiliaries, but for women's clubs and other organizations. "Beware of free speakers—they have something to sell," he said. The A. M. A. has a rogue's gallery, so to speak, where information on all free speakers may be obtained. He urged that we keep to medical subjects in our Auxiliary meetings, as fine as other subjects might be. He also urged that we make special efforts in behalf of Hygeia, he being particularly anxious to see it placed in all school libraries—this being a splendid project for local auxiliaries.

Under old business the President explained the loan fund and urged the continuation of the drive. The interest is to be used for the education of the child of a physician. A joint committee from the Auxiliary and the Medical Society are to work out details. A ruilng from the Executive Committee was read as follows: "The Executive Board rules that only members who have paid their $1.00 dues can be eligible to prizes at the bridge parties."

Under new business, the President announced the awards of the various prizes, all the money for which was turned over to Mrs. Holmes for the loan fund.

Five dollars in gold to the Doctor's wife who secures the most new members, offered by Mrs. W. B. Murphy, of Snow Hill.

Five dollars in gold to the Auxiliary which makes the best health report, offered by Mrs. Will Spicer, of Goldsboro.

Five dollars in gold to the Auxiliary which makes the largest contribution to the loan fund, offered by Mrs. J. H. Harper, of Snow Hill.

Five dollars in gold to the Auxiliary which makes the largest per capita contribution to the loan fund, offered by Mrs. Malcolm Bizzell, of Goldsboro.

Five dollars in gold to the Councilor who reports the largest number of active auxiliaries this year, offered by Mrs. W. H. Cobb, of Goldsboro.

Five dollars in gold to the first County Auxiliary sending to State Treasurer a 100 percent membership, offered by Mrs. J. M. Parrott, of Kinston.

A five-dollar gold piece to the Auxiliary that has the most attractive programs during the year, offered by Mrs. R. S. McGeachy, of Kinston.

A five-dollar gold piece to the Auxiliary sending in the best all-round report, offered by Mrs. C. F. West, of Kinston.

Mrs. Holmes announced that cards would be sent to members as fast as the dues came in. Mrs. Ownbey, Greensboro, offered to have the cards printed and donate them to the Auxiliary.

The President announced that Mrs. McGeachy would appoint committee for revision of the constitution. The Secretary was instructed to write Mrs. Will Reynolds "a love letter" for the generous donation of $100 to the loan fund.

Mrs. Ownbey read some resolutions regarding women and children in industry which are being urged by the Legislative Council for adoption at 1931 General Assembly. The Secretary was instructed to send Mrs. Bulus Swift a telegram telling of the unanimous endorsement by the Auxiliary, which was done.

The Nominating Committee, of which Mrs. V. M. Hicks was chairman, made their report, the report being adopted without dissenting vote (see Page 519). The retiring President in gracious words then turned the gavel over to the incoming President, Mrs. R. S. McGeachy.

After a few announcements by the Committee on Arrangement, the meeting stood adjourned.

MEMBERS OF THE AUXILIARY TO THE NORTH CAROLINA MEDICAL SOCIETY 1930-1931

Algood, Mrs. R. A. ..... Fayetteville
Alyea, Mrs. E. P. ..... Durham
Ambler, Mrs. C. P. ..... Asheville
Amoss, Mrs. H. L. ..... Durham
Anderson, Mrs. C. F. ..... Burlington
Anderson, Mrs. W. H. ..... Wilson
Andrews, Mrs. E. D. ..... Salisbury
Armstrong, Mrs. C. W. ..... Salisbury
Ashworth, Mrs. W. C. ..... Greensboro
Austin, Mrs. J. W. ..... High Point
Averett, Mrs. K. G. ..... Cedar Creek
Baker, Mrs. H. M. ..... Lumberton
Baker, Mrs. D. ..... Fort Bragg
Barber, Mrs. Y. M. ..... Macclesfield
Barefoot, Mrs. G. ..... Wilmington
Bass, Mrs. H. H. ..... Durham
Battle, Mrs. J. P. ..... Rocky Mount
Beard, Mrs. G. C. ..... Atkinson
Beckwith, Mrs. R. P. ..... Rosemary
Bell, Mrs. F. O. ..... Burlington
Bell, Mrs. G. E. ..... Wilson
Bellamy, Mrs. R. H. ..... Wilmington
Bethune, Mrs. A. C. ..... Raeford
Bittinger, Mrs. S. M. ..... Sanatorium

Bizzell, Mrs. M. E. ..... Goldsboro
Blair, Mrs. A. M. ..... Southern Pines
Blumberg, Mrs. Alfred ..... Asheville
Booker, Mrs. L. S. ..... Durham
Boone, Mrs. W. ..... Durham
Bonner, Mrs. J. B. ..... Raleigh
Bonner, Mrs. O. B. ..... High Point
Bowles, Mrs. F. N. ..... Durham
Bowman, Mrs. E. L. ..... Lumberton
Bowman, Mrs. H. E. ..... Aberdeen
Brewer, Mrs. J. S. ..... Roseboro
Brewton, Mrs. W. A. ..... Asheville
Bridger, Mrs. D. H. ..... Bladenboro
Brinkley, Mrs. H. M. ..... Durham
Britt, Mrs. J. M. ..... Lumberton
Britt, Mrs. T. C. ..... Washington
Broadway, Mrs. R. E. ..... Tarboro
Brockman, Mrs. H. L. ..... High Point
Brooks, Mrs. R. E. ..... Burlington
Brookshire, Mrs. H. G. ..... Asheville
Brown, Mrs. C. E. ..... Salisbury
Brown, Mrs. J. P. ..... Fairmont
Brown, Mrs. J. W. ..... Raeford
Brownsberger, Mrs. J. F. ..... Asheville
Bryan, Mrs. L. D. ..... Sneads Ferry
Burnett, Mrs. B. S. ..... Fort Bragg
Buie, Mrs. R. M. ..... Greensboro
Bulla, Mrs. A. C. ..... Raleigh
Bullock, Mrs. E. S. ..... Wilmington
Burress, Mrs. D. A. ..... High Point
Burrus, Mrs. J. T. ..... High Point
Byerly, Mrs. W. G. ..... Sanatorium
Caldwell, Mrs. F. ..... Wilmington
Campbell, Mrs. A. C. ..... Raleigh
Carter, Mrs. H. W. ..... Washington
Carrington, Mrs. G. S. ..... Burlington
Carroll, Mrs. F. ..... Hookerton
Carroll, Mrs. J. W. ..... Wallace
Caviness, Mrs. Z. M. ..... Raleigh
Clement, Mrs. E. ..... Salisbury
Cluster, Mrs. J. P. ..... Fayetteville
Coates, Mrs. E. A. ..... Fort Bragg
Cobb, Mrs. W. H. ..... Goldsboro
Cobb, Mrs. D. B. ..... Goldsboro
Codington, Mrs. H. A. ..... Wilmington
Coe, Mrs. S. S. ..... High Point
Colby, Mrs. C. DeW. ..... Asheville
Coppridge, Mrs. W. M. ..... Durham
Corbett, Mrs. J. P. ..... Swansboro
Cox, Mrs. E. L. ..... Jacksonville
Cozart, Mrs. W. S. ..... Fuquay Springs
Cranmer, Mrs. J. B. ..... Wilmington
Crisp, Mrs. S. M. ..... Greenville
Crouch, Mrs. A. M. ..... Wilmington
Crow, Mrs. S. L. ..... Asheville
Crowell, Mrs. L. A. ..... Lincolnton
Crumpler, Mrs. P. ..... Clinton
Currie, Mrs. D. C. ..... Parkton
Davison, Mrs. W. C. ..... Durham
Davidian, Mrs. V. A. ..... Smithfield
Daughtridge, Mrs. A. L. ..... Rocky Mount
Dawson, Mrs. E. ..... Hookerton
Dees, Mrs. R. ..... Greensboro
DeLoatch, Mrs. M. W. ..... Tarboro
Dickey, Mrs. J. W. ..... Southern Pines
Dickenson, Mrs. E. F. ..... Wilson
Dingle, Mrs. W. P. ..... Fort Bragg
Dixon, Mrs. H. C. ..... Leaksville
Dixon, Mrs. W. H. ..... Ayden
Dosher, Mrs. J. A. ..... Southport
Eagle, Mrs. W. ..... Durham
Eldridge, Mrs. C. P. ..... Raleigh
Elliott, Mrs. A. ..... Wilmington
Ellis, Mrs. F. A. ..... Salisbury
Evans, Mrs. J. E. ..... Wilmington
Farthing, Mrs. L. E. ..... Wilmington
Felts, Mrs. R. L. ..... Durham
Flagge, Mrs. P. W. ..... High Point
Flamers, Mrs. C. E. ..... Zebulon
Fleming, Mrs. G. M. ..... Cleveland
Fox, Mrs. N. A. ..... Stokesdale
Fox, Mrs. R. E. ..... Asheville
Freeman, Mrs. J. D. ..... Wilmington
Gilmore, Mrs. C. N. ..... Greensboro
Graham, Mrs. B. R. ..... Wilmington
Grady, Mrs. F. V. ..... Wilson
Grayson, Mrs. C. S. ..... High Point
Green, Mrs. T. M. ..... Wilmington
Green, Mrs. W. W. ..... Tarboro
Groom, Mrs. J. G. ..... High Point
Gwynn, Mrs. H. S. ..... Yanceyville
Hall, Mrs. J. S. ..... Wilmington
Hamilton, Mrs. J. H. ..... Wilmington
Hardin, Mrs. E. R. ..... Lumberton
Harper, Mrs. J. H. ..... Snow Hill
Harvey, Mrs. W. W. ..... Greensboro
Harrell, Mrs. S. N. ..... Tarboro
Harriss, Mrs. A. H. ..... Wilmington
Harrison, Mrs. E. T. ..... High Point
Hayes, Mrs. A. H. ..... Fairmont

Henderson, Mrs. J. P. ..... Jacksonville
Herring, Mrs. B. S. ..... Wilson
Hiatt, Mrs. H. B. ..... High Point
Hicks, Mrs. V. M. ..... Raleigh
Highsmith, Mrs. J. F. ..... Fayetteville
Highsmith, Mrs. Seavy ..... Fayetteville
Hines, Mrs. E. R. ..... Rocky Mount
Hipps, Mrs. A. T. ..... Asheville
Hoggard, Mrs. J. T. ..... Wilmington
Holmes, Mrs. A. B. ..... Fairmont
Holt, Mrs. D. W. ..... Greensboro
Hooker, Mrs. J. S. ..... Sanatorium
Hooper, Mrs. J. W. ..... Wilmington
Hoover, Mrs. H. R. ..... Wilson
House, Mrs. N. O. ..... Tarboro
Hudson, Mrs. C. C. ..... Greensboro
Huffines, Mrs. T. R. ..... Asheville
Huston, Mrs. J. W. ..... Asheville
Hutchinson, Mrs. S. S. ..... Bladenboro
Ivey, Mrs. H. B. ..... Goldsboro
Ivy, Mrs. R. R. ..... Asheville
Irvin, Mrs. H. ..... Eureka
Jackson, Mrs. W. L. ..... High Point
Jervey, Mrs. A. J. ..... Tryon
Johnson, Mrs. G. ..... Wilmington
Johnson, Mrs. H. L. ..... Greensboro
Judd, Mrs. E. C. ..... Raleigh
Jordan, Mrs. W. S. ..... Fayetteville
Judd, Mrs. J. M. ..... Raleigh
Johnson, Mrs. J. A. ..... Fort Bragg
Keiger, Mrs. J. A. ..... Greensboro
Kerns, Mrs. T. C. ..... Durham
Ketchie, Mrs. J. M. ..... Salisbury
Kluttz, Mrs. D. ..... Washington
Kerr, Mrs. J. DeWitt ..... Clinton
Kerksey, Mrs. W. A. ..... Fayetteville
Knight, Mrs. W. P. ..... Greensboro
Knowles, Mrs. D. L. ..... Rocky Mount
Knox, Mrs. J. ..... Lumberton
Kornegay, Mrs. L. W. ..... Rocky Mount
Koonce, Mrs. S. E. ..... Wilmington
Lane, Mrs. J. L. ..... Rocky Mount
Lane, Mrs. P. ..... Wilson
Larkin, Mrs. E. W. ..... Washington
Lassiter, Mrs. H. G. ..... Weldon
Lawrence, Mrs. B. J. ..... Raleigh
Lee, Mrs. J. ..... Newton Grove
Lee, Mrs. R. E. ..... Fort Bragg
Lister, Mrs. J. L. ..... Mt. Olive
Lilly, Mrs. J. M. ..... Fayetteville
Long, Mrs. E. T. ..... High Point
Long, Mrs. T. W. M. ..... Roanoke Rapids
Looney, Mrs. J. W. ..... Rocky Mount
Lowery, Mrs. J. R. ..... Salisbury
Lucas, Mrs. P. E. ..... Burgaw
Lynch, Mrs. J. M. ..... Asheville
Lyon, Mrs. B. R. ..... Greensboro
Marriott, Mrs. H. B. ..... Blottsboro
Macon, Mrs. G. H. ..... Warrenton
Madigan, Mrs. J. A. ..... Fort Bragg
Malloy, Mrs. S. A. ..... Yanceyville
Mann, Mrs. I. T. ..... High Point
Marlow, Mrs. A. W. ..... Walstonburg
Marsh, Mrs. F. B. ..... Salisbury
Marsh, Mrs. J. H. ..... Fayetteville
Martin, Mrs. J. A. ..... Lumberton
Matheson, Mrs. R. A., Jr. ..... Raeford
Meadows, Mrs. W. J. ..... Greensboro
Moncure, Mrs. W., Jr. ..... Salisbury
Monk, Mrs. H. L. ..... Salisbury
Montgomery, Mrs. H. M. ..... Burlington
Mosley, Mrs. Z. V. ..... Kinston
Moore, Mrs. W. H. ..... Wilmington
Miller, Mrs. R. B. ..... Goldsboro
Michaux, Mrs. E. R. ..... Greensboro
Moore, Mrs. C. E. ..... Wilson
Moore, Mrs. E. G. ..... Elm City
Mitchell, Mrs. G. W. ..... Wilson
Mullen, Mrs. M. P. ..... Wilson
Mudgett, Mrs. W. C. ..... Southern Pines
Murphy, Mrs. G. W. ..... Asheville
Murphy, Mrs. J. G. ..... Wilmington
Murphy, Mrs. W. B. ..... Snow Hill
Murchison, Mrs. D. R. ..... Wilmington
Murray, Mrs. R. L. ..... Raeford
MacClelland, Mrs. J. O. ..... Maxton
McAnally, Mrs. W. J. ..... High Point
McCain, Mrs. P. P. ..... Sanatorium
McCain, Mrs. W. R. ..... High Point
McCracken, Mrs. C. M. ..... Fairview
McCuiston, Mrs. A. B. ..... Kinston
McCutcheon, Mrs. W. B. ..... Durham
McGeachy, Mrs. R. S. ..... Greenville
McGehee, Mrs. J. W. ..... Reidsville
McGee, Mrs. J. W. ..... Raleigh
McIntyre, Mrs. S., Jr. ..... Lumberton
McClees, Mrs. E. C. ..... Elm City
McKenzie, Mrs. B. W. ..... Salisbury
McMillan, Mrs. R. D. ..... Red Springs
McPherson, Mrs. C. W. ..... Burlington

McKay, Mrs. W. P. ..... Fayetteville
McKeithan, Mrs. D. G. ..... Fayetteville
McNeill, Mrs. J. O. ..... Fayetteville
McDaniel, Mrs. L. E. ..... Jackson
McRae, Mrs. J. D., Jr. ..... Asheville
McFadyen, Mrs. O. L. ..... Fayetteville
Nesbit, Mrs. C. T. ..... Wilmington
Oliver, Mrs. A. S. ..... Raleigh
Owenby, Mrs. A. D. ..... Greensboro
Pace, Mrs. K. B. ..... Greenville
Palmer, Mrs. M. C. ..... Tryon
Parker, Mrs. H. R. ..... Greensboro
Parker, Mrs. O. L. ..... Clinton
Pearson, Mrs. H. O. ..... Pinetops
Perry, Mrs. D. R. ..... Durham
Person, Mrs. E. C. ..... Pikeville
Person, Mrs. J. B. ..... Selma
Plyler, Mrs. R. J. ..... Salisbury
Pope, Mrs. H. M. ..... Lumberton
Pittman, Mrs. R. F. ..... Fayetteville
Powell, Mrs. A. H. ..... Durham
Powers, Mrs. F. P. ..... Wilmington
Raby, Mrs. J. G. ..... Tarboro
Rainey, Mrs. W. T. ..... Fayetteville
Ray, Mrs. J. B. ..... Leaksville
Reaves, Mrs. C. R. ..... Greensboro
Reid, Mrs. D. H. ..... Maxton
Reitzel, Mrs. C. E. ..... High Point
Ricks, Mrs. L. E. ..... Fairmont
Roberson, Mrs. Foy ..... Durham
Robertson, Mrs. J. F. ..... Wilmington
Robertson, Mrs. ..... Salisbury
Robertson, Mrs. J. N. ..... Fayetteville
Robinson, Mrs. D. E. ..... Burlington
Rogers, Mrs. J. R. ..... Raleigh
Ross, Mrs. G. H. ..... Durham
Rourk, Mrs. M. H. ..... Wilmington
Root, Mrs. A. S. ..... Raleigh
Royster, Mrs. T. H. ..... Roanoke Rapids
Salley, Mrs. E. M. ..... Saluda
Saunders, Mrs. S. S. ..... High Point
Schaffle, Mrs. K. ..... Asheville
Seay, Mrs. T. W. ..... Spencer
Sessoms, Mrs. E. T. ..... Roseboro
Shands, Mrs. A. R. ..... Durham
Sharpe, Mrs. F. R. ..... Greensboro
Shaw, Mrs. C. ..... Atkinson
Shaw, Mrs. J. A. ..... Goldsboro
Shelburne, Mrs. P. A. ..... Greensboro
Schoonover, Mrs. R. A. ..... Greensboro
Smith, Mrs. O. F. ..... Scotland Neck
Smith, Mrs. W. H. ..... Goldsboro
Smoot, Mrs. W. L. ..... Fayetteville
Spicer, Mrs. J. ..... Goldsboro
Staley, Mrs. S. W. ..... Rocky Mount
Steele, Mrs. W. C. ..... Mt. Olive
Shuler, Mrs. J. E. ..... Durham
Suiter, Mrs. W. G. ..... Weldon
Sidbury, Mrs. J. B. ..... Wilmington
Sigman, Mrs. F. G. ..... Spencer
Simpson, Mrs. H. H. ..... Elon
Slate, Mrs. J. W. ..... High Point
Slate, Mrs. W. C. ..... Spencer
Slocum, Mrs. R. B. ..... Wilmington
Smith, Mrs. O. ..... High Point
Sowers, Mrs. J. L. ..... Lexington
Speed, Mrs. J. A. ..... Durham
Spicer, Mrs. W. ..... Goldsboro
Spoon, Mrs. S. C., Jr. ..... Burlington
Spruill, Mrs. J. L. ..... Jamestown
Stamps, Mrs. T. ..... Lumber Bridge
Stevens, Mrs. M. L. ..... Asheville
Strickland, Mrs. E. L. ..... Wilson
Strosnider, Mrs. C. F. ..... Goldsboro
Sumner, Mrs. E. A. ..... High Point
Sutton, Mrs. C. W. ..... Richlands
Tankersley, Mrs. J. W. ..... Greensboro
Tayloe, Mrs. D. T., Jr. ..... Washington
Tayloe, Mrs. J. C. ..... Washington
Taylor, Mrs. F. R. ..... High Point
Taylor, Mrs. W. L. ..... Burgaw
Thomas, Mrs. C. D. ..... Sanatorium
Thorpe, Mrs. A. T. ..... Rocky Mount
Troxler, Mrs. R. M. ..... Burlington
Turner, Mrs. H. ..... Raleigh
Underwood, Mrs. O. E. ..... Roseboro
Van Poole, Mrs. C. M. ..... Salisbury
Verdery, Mrs. W. C. ..... Fayetteville
Walker, Mrs. J. B. ..... Burlington
Walters, Mrs. C. M. ..... Burlington
Warren, Mrs. R. F. ..... Prospect Hill
Watkins, Mrs. G. ..... Durham
Watkins, Mrs. Wm. ..... Durham
Weathers, Mrs. B. ..... Roanoke Rapids
Wessell, Mrs. J. C. ..... Wilmington
West, Mrs. B. C. ..... Kinston
West, Mrs. C. F. ..... Kinston
White, Mrs. R. A. ..... Asheville
Whittington, Mrs. W. W. ..... Snow Hill
Whitaker, Mrs. F. C. ..... Enfield

Wilkinson, Mrs. C. T. ..... Wake Forest
Wilkinson, Mrs. R. W., Jr. ..... Wake Forest
Wilson, Mrs. R. B. ..... Newton Grove
Williams, Mrs. J. H. ..... Sanatorium
Williams, Mrs. T. G. ..... Conetoe
Wilkins, Mrs. J. ..... Mt. Olive
Winstead, Mrs. E. G. ..... Belhaven
Williams, Mrs. L. L. ..... Fayetteville
Wolfe, Mrs. N. C. ..... Burgaw
Williams, Mrs. A. R. ..... Warsaw
Woodard, Mrs. A. G. ..... Goldsboro
Wooten, Mrs. A. M. ..... Pinetops
Willis, Mrs. B. C. ..... Rocky Mount
Willis, Mrs. H. ..... Wilson
Woodard, Mrs. C. A. ..... Wilson
Woodard, Mrs. G. B. ..... Wilson
Wright, Mrs. J. B. ..... Raleigh
Yoder, Mrs. P. A. ..... Winston-Salem
York, Mrs. A. A. ..... High Point
Young, Mrs. J. C. ..... Asheville

TRANSACTIONS

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

TWENTY-FIRST ANNUAL SESSION

DURHAM, N. C.
MONDAY, APRIL 20, 1931

TRANSACTIONS

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

TWENTY-FIRST ANNUAL SESSION

DURHAM, MONDAY, APRIL 20, 1931

The North Carolina Public Health Association met in Lecture Room "A" of the Washington Duke Hotel, Durham, Monday, April 20, 1931, and was called to order at ten a. m., by the President, Dr. D. E. Ford, New Bern.

The invocation was said by Dr. J. A. Morris, Oxford.

Dr. F. M. Register, Secretary, read his report, which on motion was accepted.

Report of Secretary

F. M. REGISTER, M.D., Goldsboro

MINUTES

TWENTIETH ANNUAL SESSION

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

The Twentieth Session of North Carolina Public Health Association met at Pinehurst, April 28th, 1930.

Dr. J. R. Hege, President, presiding.

Papers were read by:

Dr. C. W. Armstrong, Salisbury.
Miss Willie Burt Fuller, Greensboro.
Dr. E. S. Thompson, Winston-Salem.
Mrs. Charles R. Whitaker, Southern Pines,
Dr. R. L. Carlton, Winston-Salem.
Mr. H. E. Miller, Raleigh.
Dr. William Moore, Raleigh.
Dr. H. H. Bass, Durham.
Dr. Charles O'H. Laughinghouse, State Health Officer.
Program for control of Tuberculosis in Forsyth County, presented by Dr. L. B. McBrayer.

The following Committees were appointed:

Visitors and New Members: Doctors J. H. Epperson, A. C. Bulla, and J. A. Morris.

Resolutions:

Doctors H. A. Taylor, C. C. Hudson and John Symington.

The following Officers were elected:

Dr. D. E. Ford, President.

Dr. J. H. Epperson, Vice-President.

Dr. F. M. Register, Secretary.

The Association adjourned to meet in Durham, April 20th, 1931.

Dr. R. S. McGeachy, Greenville, introduced Dr. J. Vance Moseley, Health Officer of Lenoir County, as one of the newest health officers in the state.

While the Secretary, Dr. Register, presided, Dr. Ford read his presidential address.

PRESIDENT'S ADDRESS

LET US GIVE OURSELVES THE ONCE-OVER

Dr. D. E. Ford, New Bern

The proof of the prescription is in the taking. The proof of public health is in its application.

A brilliant diagnosis and a masterly choice of remedy will satisfy the medical student and win admiration from colleagues, but they do not cure the patient. The prescription must be filled and taken as directed. The remedial procedures must be selected so as to fit the mental, social and financial environment of the patient that will use it. A prescription for "Adex Tablets and orange juice" will not build up the broken resistance of the job-hunter with a starving family. "Absolute rest in bed, freedom from worry and a list of nourishing foods" will not cure the consumptive mother with a brood to cook for and little to cook. It is not the knowledge that cures but its application.

As with the individual, so it is with man as a social group—with preventive medicine. Of the practice of Preventive Medicine there are two rather distinct divisions mutually dependent for results: the division of Research and the division of Application. The first has been functioning for many years—Pasteur and Jenner shining as pioneer luminaries. A host of brilliant workers have added to the fund of facts. From time to time so-called "discoveries" have caught the popular imagination and "heroes" have been proclaimed, and semi-scientific popular writers have pounced upon others for magazine and book material. But nearly all of the work has gone quietly on adding to the bulk of knowledge for the prevention of sickness.

As a result of this work we already know how to eliminate rabies, typhoid, diphtheria, smallpox, tetanus, tuberculosis, hookworm and malaria and, probably pellagra, as well as other diseases seldom seen in this country. We have almost secured a strangle hold on measles, whooping cough and scarlet fever and we know a lot about the prevention of syphilis.

This fund of knowledge is piling up steadily year after year. The research division is efficient. It attracts some of the best minds in our medical schools. Its growth is steady. It lays its plans far ahead with reasonable certainty of opportunity to see them through. The caliber of its personnel attracts legacies and endowments.

But in the use of the facts of preventive medicine given us by the research division—in their application to the good of humanity—we have muddled and are still muddling. We are not efficient. We are not thorough.

In our own state, which ranks high in the practice of preventive medicine, yellow fever is the only one of the preventable diseases that we have eliminated. Hundreds of thousands of our people are still unvaccinated and smallpox epidemics are possible. Two-thirds of our children are still susceptible to diphtheria. We allow ourselves and our children to be mangled by rabid dogs, and the distribution of Pasteur treatment is still a big part of the work of the State Laboratory. In large areas of the state, rural anti-typhoid measures are unpracticed, almost unknown. Syphilis and gonorrhea—the most devastating diseases of them all—we haven't yet dared to attack openly, except in spots.

Many thousands of our children are mal-nourished, ill-fed or semi-starved, not because of poverty but because of ignorance or neglect. Their efforts to assimilate an adequate education are hopeless to themselves and a frightfully expensive drag upon the school system.

Sanitary conditions in the majority of our schools are primitive. Heating, lighting and seating are left to chance. Few teachers are trained in health management and in the training of children in social habits.

Not that we have not made marvelous progress. We have. But we bump and skid and spin the wheels. The engine stutters and misses with inferior gas. The urban centers have far outstripped the rural, and both lag far behind in results that should be attained, taking into consideration the progress of the research division in preventive medicine. The application of preventive medicine has not kept up with the facts at its disposal, except in favored spots. Why? My answer is "for lack of men and the opportunity to work out constructive plans over a period of years."

The practice of preventive medicine is a distinct specialty, as is research, or obstetrics or pediatrics or eye-ear-nose-and-throat, or orthopedic surgery. And it embodies the very essence of the ideals of our medical training. Yet how many of the best students in our medical schools are choosing preventive medicine as their prospective specialty? Only the occasional missionary-minded idealist.

"What has it to offer?" they ask.

"A laborer's wage, a tenure of office too often controlled by a small politician and little of honor among the profession." What a goal for four or five years of special training.

What can be done about it?

I beg to suggest some things that can be done.

Establish Public Health Districts to cover all rural as well as urban areas in the state. Have them large enough to be attractive but not too large to destroy that personal touch of Health Commissioner with parents and children that is absolutely necessary to success. Let the tenure of office be dependent upon results as measured by men who can judge results.

Establish a comprehensive alliance of Public Health and Public Education.

Under this alliance protect all children from epidemic diseases.

Eliminate unhealthful school environments.

Give teachers training in school-health management.

Attack malnutrition in the elementary grades by supervised lunch, and by feeding concentrated vitamins to all under-weights.

Concentrate the program upon the children—all the children. Let the big army of school teachers help. They want to be shown how to help effectively. It is they that most of all realize the pedagogical difference between a room with careless, dirty, ill-nourished children, and one where there is pride in neatness, in cleanly personal and social habits, and a minimum of physical handicaps. It is the difference between drudgery and joy in the day's work.

The young children are the bearers of progress in preventive medicine. Benefit the children and you get the coöperation of their parents. Children, healthy and able to assimilate an education, trained to healthful living habits, will prevent most of the morbidity of middle-age, this morbidity that is the arch foe of human happiness.

It is against this foe that we are using, with unpardonable lack of skill, the weapons fashioned for us in the laboratories of medical research.

President Ford: We want to pay tribute this morning to two of the most beloved men in the state who used their lives toward the prevention of disease, and we have arranged on our program for papers on the life and character of Dr. Charles O'Hagan Laughinghouse and Dr. Cyrus Thompson. First we shall hear Dr. James M. Northington on the life and character of Dr. Thompson.

THE LIFE AND CHARACTER OF DR. CYRUS THOMPSON

James M. Northington, M.D., Charlotte

Dr. Cyrus Thompson, I know, was known to every one of you intimately, possibly with the exception of some of those who have entered these ranks so recently as not to have been able to establish the contacts which have been a source of so much pleasure and profit and happiness to those who have been in the Medical Society of the State of North Carolina for a longer period.

I take it that the usual style of address on the life of a friend is not the most appealing. There are very few of us who are seriously interested in just the day and year a man was born or of what parents, although we are much interested in his parentage, or in just what county or town saw him come into the world or in a detailed descrip-

tion of his early education and later education. Rather, we would like to know some more intimate things, some of the details of his life that are very characteristic, and then some of his outstanding characteristics.

Some months ago, with numbers of other friends of his, I stood in the shade of the cedars that cast their shadows over the graves of his ancestors and saw Dr. Thompson laid to rest. I went around and read from the tombstones the names of his parents, and it seemed to me I saw something characteristic there. His father was named Franklin and his mother Leah. As I stood there, not far from the shores of the Atlantic, in the quiet county of Onslow, I thought of how exceptional these people must have been, these parents that in the few years very shortly after the devastating War between the States had, as we now call it (I am afraid with not proper understanding), caught a vision. Evidently they observed that their son was an exceptional person and determined they were going to send him out to be of some use in the world and happiness to himself, and in those hard times they made up their minds to give him a liberal education. I have no doubt it meant much of denial to them. It was a long way from there to Ashland, in the State of Virginia, the seat of Randolph-Macon College; but they sent him there to take a literary degree, and from there to the University of Virginia to take the first year of his medical course, and from there to Tulane—where he would have the excellent clinical facilities not afforded by the town of Charlottesville, where he would have to do with the diseases that afflicted his home town and community, with the malarial fevers which were the scourge of that day, and where they could not know but that Onslow would be visited by the yellow fever as it had visited disastrously Norfolk and Mobile and New Orleans less than twenty years prior to the time when Dr. Cyrus Thompson was sent out to get his medical education. It impressed me tremendously that these two in sending their offspring out to get his education had such a breadth of view, having him sweep through such a wide arc as Richmond, Charlottesville, and New Orleans, and in having him spend so much time when it was only necessary, so far as his getting a license to practice medicine and so far as his making a material success of it was concerned, that he, with the schooling he had then, go to some insignificant school and obtain his diploma. Evidently this great man was the son of noble parents.

All of you know Dr. Thompson's work as a public health official. He was not merely a social ornament, although he was that. He was not an echo to the policies put forward, but most often it was he who shaped the policies, and to him as much as to any other person do we owe the tremendous success, the saving of life, which has been effected by the public-health organizations in North Carolina. I love to think that the poor State of North Carolina (and we are poor, notwithstanding reports to the contrary concerning the revenue paid to the United States Government) has done so much in public-health work that when the League of Nations sent delegations to this country some several years ago (less than ten), to study public-health methods, they divided, one going to the powerful, rich, majestic State of New York and the

other to the poor State of North Carolina—but the state which had such a public-health system that these public-health officers of the world wanted to learn about it at first hand. It so happened that this delegation came into our district at the very time that we were holding a district meeting (and I say this, I hope, with a little pardonable pride so far as the membership of our district goes.) On this delegation the chief was a Hollander. Other nations represented were Poland, Russia, Argentine, Mexico, and Brazil; and in our own membership of that district society we had doctors who could welcome these gentlemen not only in German and in Spanish, but one who spoke the difficult language of Russia. So you see that although we are a poor state we have done exceedingly creditable work in public health and also number among the doctors of the state gentlemen of rare linguistic abilities and scholarship, gentlemen high in scholarship as was Dr. Cyrus Thompson. True friend as all of us realized Dr. Thompson to be, he is not only a comfort but an inspiration now that he is resting from his labors. While we can derive much of comfort from our realization of what he was to us, the great good that he can do for us is to inspire us to follow the way that he led and to hold high his ideals.

Dr. Thompson had a broad outlook on life. He had the true conception of education as primarily and principally the teaching of how to live rather than how to make a living. The other is necessary, but he believed with the Chinese: "Hast thou two loaves? Sell one, and buy a lily with which to feed thy soul." The gentle David Thoreau was a friend of Dr. Thompson, and Dr. Thompson well understood that "Friendship will make a man honest; it will make him a hero; it will even make him a saint." He understood along with Stevenson, also (the opposite, many of us think, unfortunately has come to pass in our state, losing sight of this idea of Stevenson's): "There is an idea abroad among moral people that they should make their neighbors good. One person I have to make good: myself. But my duty to my neighbor is much more nearly expressed by saying that I have to make him happy if I may." Few men more than Dr. Thompson contributed to the furtherance of that idea. Henry Van Dyke, the Presbyterian minister whom Wilson appointed as minister to Belgium, or ambassador to Belgium, in his time was a man of the kind Dr. Thompson loved —lover of nature, lover of liberty, lover of good talk. As you know, Dr. Thompson was a raconteur of the highest order, a man who from the rich depository of his mind, which had been filled with the expressions and the writings of the great and good of all times, brought forth at will the things which suited the occasion and suited the individual. Van Dyke said: "The very best thing in good talk is friendship. How it dissolves barriers, loosens all constraints, and diffuses itself like a fine old cordial—this feeling that we understand and trust each other and wish each other heartily well."

Just another thing from Van Dyke that I think is peculiarly appropriate, lines with which you are all probably familiar:

"Oh, who will walk a mile with me
Along life's merry way?
A comrade blithe and full of glee,
Who dares to laugh out loud and free.

"Oh, who will walk a mile with me
Along life's weary way?
A friend whose heart has eyes to see
The stars that shine o'er the darkling lea."

Our friend has rendered back to the common store his splendid share of the elemental atoms. We commemorate him; we love to think of the comfort he gave us; and we will cherish his memory and attempt to further his ideals. (Applause.)

Dr. Grady G. Dixon, Ayden: Ladies and gentlemen, listening to Dr. Northington's remarks concerning Dr. Thompson carried me back to April, 1917, when I attended my first North Carolina Medical Society meeting. Dr. Laughinghouse was president of the Society and had taken me under his wing as a new practitioner in his county, so to speak, to bring me up in the way that a young man should go, to initiate me into organized medicine, and to help me to find my way. He introduced me to Dr. Thompson at Asheville, and I consider myself the most lucky man in eastern North Carolina, for from that day until the day that Dr. Thompson died he was my best friend. We lived about seventy miles apart, yet at every opportunity the old gentleman, it seemed, went out of his way to give me a lift, a boost, a helping hand; and for that reason, if no other, I think that I have lost in the past year my two best friends in the practice of medicine. I just wanted to say that much about Dr. Thompson, because I loved him, if for selfish reasons, because he seemed to love me.

THE LIFE AND CHARACTER OF DR. CHARLES O'HAGAN LAUGHINGHOUSE

Grady G. Dixon, M. D., Ayden

Mr. President, Ladies and Gentlemen:

In my mind one of the greatest privileges that a man has is an opportunity to boost one friend to another; yet there is another privilege greater. I consider it the highest honor that you could bestow upon me in allowing me to come before you to discuss the life and character of Dr. Charles O'Hagan Laughinghouse. The great subject that I have and the short time allowed me to present it necessitates my touching the high spots only. One who was acquainted with Dr. Laughinghouse and has sufficient vocabulary could talk on and on and on, almost indefinitely, in describing the good and great things of his life, his character and his work.

Dr. Laughinghouse was the son of Captain Joseph J. and Eliza O'Hagan Laughinghouse, and a grandson of the beloved Dr. Charles

O'Hagan. He was born in Pitt County, February 25, 1871, and grew up as the ordinary country boy of his time. He received his early education in private schools and at Horner's Military Academy, Oxford, N. C., attended the University of North Carolina for two years, and completed his medical education at the University of Pennsylvania. He graduated here in 1893 with honors. After completing his medical education he returned to his old home in Greenville and soon became an outstanding member of the medical profession.

In 1895 he married Miss Carrie Dail of Snow Hill, N. C., and from 1895 until 1930 the doctor and Miss Carrie lived in North Carolina. They were the most congenial, happy, optimistic couple that North Carolina has known. They reared two sons and one daughter in Greenville.

In 1902 Dr. Laughinghouse was elected a member of the State Board of Health and served continuously as a member of the Board of Health until he resigned in 1925. In 1917 Dr. Laughinghouse was president of the North Carolina Medical Society—the same year war was declared in April against the Imperial German Government. In May, Dr. Laughinghouse was commissioned a major in the medical corps of the United States Army. In September, 1918, he was sent to France as a Lieutenant-Colonel, in command of Base Hospital No. 85. In March, 1919, he returned to Greenville and resumed his practice of medicine.

Dr. Laughinghouse was a fellow of the American Medical Association, a member, and past president of the Pitt County Medical Society, the North Carolina Medical Society, and a member of the Southern Medical Association and the Seaboard Medical Society.

Dr. Laughinghouse was the first post commander of the Pitt County Post of the American Legion. He was a member of the Greenville Kiwanis Club and had been president of the same. In Masonry he belonged to Greenville Lodge No. 284, A. F. & A. M. In politics he was a democrat, and a member of Jarvis Memorial Methodist Church. I have cited his membership in these various organizations to show that no matter what it was or who started it, if it were for the good of the community, Dr. Laughinghouse was not only ready, but willing and anxious to take an active part, and once he had become connected with any organization or fraternity his brethren soon saw his great worth and pushed him to the forefront, without his seeking. He was the first man in the community to grasp the need of better educational facilities for the public as a whole. The Good Road Program was initiated in Pitt County by Dr. Laughinghouse. Public health work with him was a hobby. The welfare of the general public, in all respects, was his creed. No task was too great for him to tackle; none too small to attract his attention; and when once he put his hand to the plough, he never looked back but drove straight ahead to the completion of the task—a wonderful friend, a loyal worker and a valiant foe. Being a grandson of Dr. Charles O'Hagan and Dr. O'Hagan having emigrated directly from Ireland to North Carolina, you can readily see that he came honestly by his tenacity and will to fight for

a just cause. His Irish sense of humor was equalled by few and excelled by none.

From 1902 until 1925, the twenty-three years that he served as a member of the State Board of Health, were his most active years in life and in the practice of medicine; yet he could always find time to serve his fellowmen through his work with the Board of Health, and were I to look about for some one to compare with him, I could find no character in literature more fitting than the memorable 'Abou Ben Adam, who upon being told that his name was not among those who loved the Lord, replied, "I pray, thee, then write me as one who loves his fellowmen."

In October, 1926, Dr. Laughinghouse accepted the position as State Health officer and secretary to the State Board of Health and from that time until his death he gave his life for the state as a whole. Day upon day and night upon night, with but a few hours of sleep, he went from east to west and north to south, serving those that he loved—not in a half-hearted way but as one whose heart, soul and body was wrapped in his work. When it became necessary he could wield the mailed fist as a czar, and when convinced that his course was right, no amount of opposition could deter him; yet at all times he was gentle, kind and considerate. The elevation to office, homage from those that loved him, and authority never turned his head, but gave him a great incentive to do a greater work and to be a better friend to those that loved and trusted him.

Dr. Laughinghouse was a great lover of books, both prose and poetry. When most men were asleep, Laughinghouse was reading. In that way, he not only kept up, but kept ahead of the masses and made himself a leader of men.

PARAPHRASING MR. KIPLING'S "IF"

He could keep his head when all about him
  Were losing theirs and blaming it on him;
He could trust himself when all men doubted him,
  But make allowance for their doubting too;
He could wait and not be tired by waiting,
  Or being lied about, not deal in lies,
Or being hated not giving way to hating,
  And yet he did not look too good, nor talk too wise.

He could dream and not make dreams his master;
  He could think and not make thoughts his aim,
He could meet with both Triumph and Disaster,
  And treat those two imposters just the same;
He could bear to hear the truth he had spoken
  Twisted by knaves to make a trap for fools,
He could watch the things he gave his life to, broken, and stoop
  And build them up with worn out tools.

He could make one heap of all his winnings,
  And risk it on one turn of pitch-and-toss,

And lose, and start again at his beginning
  And never breathe one word about his loss;
He forced his heart and nerve and sinew
  To serve his turn long after they were gone,
And so hold on when there was nothing in him except
  The will which said to him, "Hold on."

He could talk with crowds and keep his virtue,
  Or walk with kings nor lose the common touch,
Neither foes nor loving friends could hurt him,
  All men counted with him but none too much;
He could fill the unforgiving minute
  With sixty seconds worth of distance run;
His was the earth and everything in it,
  And which is more, he was a man well done.

President Ford: Somehow after listening to these tributes to these two great men whose loss we are feeling now and shall feel for a long time to come, it seems almost sacrilegious to come back and go on with the program. But the program must go on. So we shall now hear from Miss Columbia Munds on "The Value of the Layman in the Public Health Nursing Program." Miss Munds.

THE VALUE OF THE LAYMAN IN THE PUBLIC HEALTH NURSING PROGRAM

Columbia Munds, R.N., Wilmington

In studying the history of Public Health Nursing we look with pride back to the days of Egypt, India and other ancient countries, to the work that was done by the people for the sick poor, then on down to the time of the early Christians to Phoebe, to whom St. Paul alluded, and who is the first visiting nurse whose name we know. To the time of the Crusades when the members of the religious orders gave practically all of the care to the sick, down to the middle of the nineteenth century, when William Rathbone, of Liverpool, England, with the help of Florence Nightengale, organized the first district nursing association in the modern sense of the term.

The progress that has been made in the seventy-five years since the above-mentioned organization was started is truly remarkable. One by one the organizations have come into existence, slowly at first then more rapidly as the public appreciated the value of this work. The first visiting nurse in the United States began her work in 1877 in New York City, by 1893 Boston, Philadelphia and Chicago had fallen into line. In 1906 there were twenty-one visiting nurse organizations and in 1924 about three thousand, employing nearly twenty thousand nurses. We have no later definite statistics; the National Organization for Public Health Nursing is taking a census this year.

The National Organization for Public Health Nursing is a clearing house for professional problems, it maintains, among other things, an

advisory service for both individual nurses and organizations, who are members, a field service, surveys are made on request, a statistical service, publishes a magazine, has a loan library and in coöperation with another organization a vocational service. The nurses employed by the corporate members of the National Organization, are rated by them (the National) on preliminary and professional education, State Registration and Supervision.

Nurses, themselves, are the first to realize they could not have accomplished this alone, this rapid development has been made possible through the coöperation and interest of lay people. At first this lay-group was composed of women, women from ancient times being considered naturally nurses, it seemed their job; as a rule one woman with vision and leadership made a group of women realize the need of nursing in the homes of the sick poor in their community.

Public Health Nursing Organizations render three types of service, first bedside care, not only to the sick poor but any one who does not need or who cannot afford the full time service of a graduate nurse may get the necessary care, those who can are expected to pay in part or whole for this service. We emphasize the fact that care is given the needy before it is to those who can pay, who could, if necessary, get care from other sources. The second type of service is Prevention of Disease, which is taught through the principles of Health, Hygiene and Sanitation; and third, the Health of the Individual, the Family and the Community is promoted through coöperation with all health and Social Agencies.

As we have said, the Public Health Nursing Organizations of the present day generally start with one nurse whose salary is paid by a group of interested laymen, later as the work develops the need for an increase in the staff is realized. In the past the Board of Directors were to supply the funds to finance this service, not to direct the work; now though there must be a professional head for the nursing work, she depends more and more on her Board to help in the solution of the problems that arise and in consequence the members of the Board develop in the directions in which they are most needed.

Dr. C. E. A. Winslow said, in an article in a recent "Public Health Nurse," the official magazine of the National Organization for Public Health Nursing, "Leadership of the modern kind must be based on expert technical knowledge and indeed it is perhaps one of the functions of the group leader to see that creative thinking has solid materials of facts out of which to create." Later he said this is especially true of the leaders in Public Health Nursing Work.

So you realize the task before the chairman of our Board is no small one if the Board functions to meet the needs of the sick, for whom the organization is created, to direct the staff through the supervisor of nurses, to acquaint the community with the needs of the organization and the work it is doing, and last but not least, to create in each member of the Board his or her appreciation of the Board's responsibility in contributing to the forward movement of Public Health Nursing everywhere.

There are three types of Public Health Nursing Organizations: The official, the non-official, and the one jointly administered. The official agency is what the name implies and works under State and Municipal Health Departments, Boards of Education and other official groups. The non-official is under Public Health and Visiting Nurse Associations, Red Cross Chapters, Insurance Companies and other non-official groups. In the third type, the administrative body includes members from both official and non-official groups. The last two mentioned are of the most interest to the general public from the administrative viewpoint and are the ones we will discuss, the personnel and working plan are practically the same.

The theory that the chain is as strong as its weakest link is true in the selection of the Board of Directors. To have a strong efficient Board, each member must be carefully selected, to be sure he or she is both interested in this type of work and also socially minded. The Board should be representative of the community, the members being chosen from all Civic and Religious groups. It has been realized for some time, that with the enlarged scope of the work, men as well as women are needed on the Boards and at the present time many Boards are about equally divided as to membership. The officers are, as a rule, selected from the Board membership, and the committees are appointed by the President. In choosing members for committees, great care should be used to place each person on the committee that will interest her most, remember also nearly every one is stimulated to do her best by being placed in a position of responsibility and in consequence will not only carry out the job given her but will be more interested with each meeting in the program of the Association.

It is in the committees that the lay worker is invaluable, she can relieve the professional worker of everything a layman can do and so the nurse has more time for nursing work.

Each organization may have as many committees as is needed, different conditions demand a larger or a smaller number; the most important for all, however, are the following: First, Finance. The budget is prepared by the Treasurer, the Chairman of the Finance Committee and the Executive Director, who is the Supervisor of Nurses; the basis of the budget is the income and expenditures of the previous year and an additional amount to cover any proposed expansion of the work. The funds are derived from the Community Chest, if there is one, from allowance made by the local government, from charitable organizations, fees from insurance companies and private patients and any other available source.

Through the Nursing Committee the contact is established between the Board and the Nurses. This committee meets with the Supervisor of Nurses to direct the nurse's work, plan for their hours on duty, salary, vacation, sick leave and anything else pertaining especially to the nurses; if there are complaints, they are investigated by this committee.

There are two committees on Education, one for the Staff and the other for Board members. Each should have a regular program so

that both nurses and Board members will be able to keep up with the changes and improvements in Public Health Nursing work.

Publicity speaks, or should speak, for itself, this may be gained through newspapers, posters, public speaking and the regular reports of the organization.

Board membership is the committee where the choice of the new member is carefully considered, where the member is selected for the committee where she can serve best.

Some organizations have a Supply Committee, others depend on the Associated Charities or some other group for material aid for the patients. If there is a supply closet it is a "Loan Closet," as one of the fundamental principles of Public Health Nursing is that nurses do not give material relief.

The Social Service Committee works with the other Social Service organizations in the community.

Volunteer Committee: More and more the usefulness of the volunteer is realized in this work. The selection of the volunteer worker is in the hands of this committee; in some organizations the volunteer is given a regular course to prepare her for the work to which she is assigned. Volunteers are expected to carry on just as faithfully and regularly as a paid worker, otherwise they are of no real help. They may give service in many ways, in the office with clerical work, with the physical examinations of school children, in the clinics and with a motor corps.

The Medical Advisory Committee is a most important one, keeps the medical profession in touch with the work of the nurses of the association and provides a clearing house for many professional problems. Standing orders are sanctioned by this committee, a nurse may only pay two calls to a sick patient, and use these orders unless a doctor is on the case.

As the work has developed, and the lay group used more and more, their sense of responsibility has also developed as they appreciate not only the importance of the work but of their share in it.

At the biennial meeting of the National Organization for Public Health Nursing in 1926, a number of lay workers attending the sessions, realized the benefit they too would derive from group meetings at intervals to discuss the non-professional problems of these organizations. A layman's meeting was called in 1928 with that of the National Organization for Public Health Nursing; the response was far beyond the most optimistic expectations and at that meeting the Board and Committee Members Section of the National Organization for Public Health Nursing was created. I had the privilege of being present; it was most interesting to see the interest in and knowledge of the work shown by these men and women. They came, about a hundred, at their own expense, from Maine, California, the East and the South. To stimulate further interest on the part of the lay-group, many organizations include, since that meeting, convention expenses, not only for one or more nurses but also for a representative from the Board, in their budget. Shortly after this meeting a secretary for this section was added to the staff of the National Organization for

Public Health Nursing; she is well fitted for the position, having served as a Board member for some years before beginning this work. In addition to the sessions at the National meetings, Board Member Institutes are held at different places several times during the year and a Board Members Forum conducted in the official magazine each month.

I have tried to show the gradual working in of the lay group and the vital place this group holds in the carrying on and advancement of Public Health Nursing at the present time.

We, the Public Health Nurses of North Carolina, hope that many years will not pass before the Lay Group, who have made themselves such an important factor in our organizations, will have a definite place in our State meetings.

Dr. R. S. McGeachy, Greenville: I move that we stand for one minute with bowed heads in memory of Dr. Laughinghouse and Dr. Thompson and then at the tap of your gavel, Mr. President, adjourn and attend the exercises at Duke University, meeting here this afternoon at two-thirty, as scheduled on the program.

President Ford: It will not be necessary to put that motion; it does not even need to be seconded. We will all rise and bow our heads for a moment.

The members rose and stood in silence for a moment, with bowed heads. The morning session then adjourned.

AFTERNOON SESSION

The Public Health Association met in Lecture Room "A" and was called to order at three p. m. by President Ford.

THE THREE –ATIONS OF PUBLIC HEALTH

R. S. McGeachy, M.D., Greenville

When I get through reading this paper, no doubt the greater majority of you who hear will wonder "why on earth he wrote at all," so I guess I had best satisfy your curiosity at the outset. About two months ago our much beloved, neat, bald-headed, good-natured secretary, Frank M. Register, wrote and asked me to write a paper, and I have always admired and respected him so much that I just did not have the heart to say "no," so if you are going to wreak vengeance on anyone, throw eggs at Frank, not at me.

In 1923 I wrote on "The Health Officer's Golden Rule," and before I read my paper someone asked me, "What is the golden rule?" so I guess I had best explain "The Three –Ations." They are *Education, Sanitation* and *Vaccination.* In my opinion every agency for the promotion of health, whether in county, state or nation, may be classed under one or the other of these heads. I have diverted somewhat from the usual order and have placed what I consider the most important agency first. With a properly educated citizenship along the lines of personal hygiene and community health, the other two agencies, Sani-

tation and Vaccination will naturally be put into effect. For the promotion of public health education in our various communities, I think we should coöperate with all agencies that are in any way interested in the welfare of the public, such as Parent-Teacher Associations, Womans' Clubs, Civic Clubs, and we should be on very friendly terms with our home and farm demonstration agents and use to the limit our local press. We should, I think, take advantage of every invitation to talk at Parent-Teacher meetings, civic clubs, etc. Just what is best to discuss in these talks will have to be decided by the local conditions at the time the talk is made. The public has, in my opinion, a perfect right to expect instructions in the proper use of preventive measures and to whom may the public look for such instruction except to the various health departments and the medical profession as a whole, and it gives me much pleasure to say that it is my opinion that the profession as a whole is paying much more attention now to the proper education along lines of prevention than in former days. Page after page could be written under the head of Education, but I must pass on, but I cannot pass from this subject without quoting from the most highly prized volume of my library, "Hall's Journal of Health," published in New York City in October, 1854. Dr. Hall asks, "Where stands the parent who gives no instruction to his children, nor causes them to be instructed as to the laws of life. Does a good citizen, even let alone a Christian parent, do his duty by his children, when he goes no further than the catechism, the confession or the prayer book?"

The first thing I wish to say under the head of Sanitation is to commend the state field workers in the department of Sanitation, for their universally gentlemanly conduct, and to thank them for their earnest and sincere desire to work in perfect harmony with the various county departments. This spirit, in my opinion, is so much more manifest than it was when I first began health work that I felt I must make my feelings known. Sanitation, in my opinion, runs Education a close race for importance in health work, and were it not as previously stated, that a properly educated public will naturally put into effect proper sanitary measures, it might stand first. From day to day I am more and more impressed with the great importance of proper sanitation. The individual should be taught to lead a sober, well-ordered life. The home should be, however small or humble, clean and well-ordered, and those that dwell there should be made happy and contented by each member of the household contributing his or her bit for the well-being of all. Incorporated villages and towns may be passed up almost entirely, for their sanitary conditions are cared for by state laws. The great importance of the proper care of dairies has been forcefully impressed upon me and I urge each health officer present to guard them with zealous care, and to pay especial attention to the dairy personnel. I hope to see the day when every health officer can control his milk supply as Broadway now does in Tarboro. There all milk is required to be produced in Grade A dairies and is pasteurized before distribution. This, to me, is the way it should be. I feel that we should watch very carefully those who have recently recovered from typhoid, especially if they have been cared for in a

hospital or institution, and before being allowed to return home, especially if the home is rural and outside a sanitary area. We should be reasonably sure they are not carriers. Within less than twenty-five miles of here I can show you three graves side by side in which are buried three young adults from one family, all because a sister brought her baby recuperating from an unrecognized case of fever to her mother's home. Should we have a carrier in a rural home, what preventive measures can we legally enforce? As a test of the value of sanitation, I hope to have a sanitary closet built and a pump installed at every home in a given area, and where there is anything to be gained by it, have the house screened and then over a period of time observe the morbidity and mortality rate in this area as compared with the rest of the county and if there is a marked improvement, I will "blow my horn," and if not, the boy that the calf ran over won't have anything on me.

At Asheville in 1923 I stated that I was a firm believer in Vaccination, but at the same time I felt that this was work that could be done by the general practitioner and that he was entitled to a fee for his services, and I am of the same opinion still, only more so. I, at the same time, discouraged the promiscuous advertising that we did free work, and that we should only do group vaccinating at certain specified times and places. I hope to see the day come when we will not have to vaccinate at all, because it will be taken care of by the physicians of our localities. From now on I expect to encourage the physicians in my territory to tell the mothers when their children are born that they know they want their children to grow to be strong, healthy, useful citizens, and that he, as her physician and medical adviser, desires to assist in every way possible and for her to bring the baby to him when it is six months old and let him give it toxin-antitoxin to keep it from having diphtheria, and a little later bring it back for typhoid inoculation and smallpox vaccination. Such action on the part of the physicians would, in my opinion, increase greatly the confidence in and esteem for the physicians, and would do more to re-establish that old friendly relationship between the patient and the physician that is so aptly described in three words, "The Family Doctor," than almost any agency I can think of. Education, you might say, practically covers all other agencies, and in closing the subject of Vaccination, I would suggest that we strive to impress upon the public the fact that immunization is not a fake, but. if administered in the proper way and at the right time, is a very effective agency in the prevention of disease, but that along with it should go proper sanitation and hygienic living.

I close with another quotation from Dr. Hall's Journal of Health: "Men consume too much food and too little pure air; they take too much medicine and too little exercise." "I labor for the good time coming, when sickness and disease, except congenital, or from accident, will be regarded as the result of ignorance or animalism, and will degrade the individual, in the estimation of the good, as much as drunkenness now does."

DISCUSSION

PRESIDENT FORD: Dr. Bulla, will you lead the discussion of Dr. McGeachy's paper?

DR. A. C. BULLA: I came in a little late and did not get all that Dr. McGeachy said in his paper, but I heard him saying something about sanitation. I think the time has come when all of us realize the importance of sanitary homes, well cared for inside and out. All of us wonder, when we go into homes and see the children crawling, running, and playing on floors which are not clean, not clean themselves, how they live to become men and women. I am, for one, a firm believer in sanitation; and I think we realize that when cleanliness in the home, cleanliness of person, cleanliness of environment, become uppermost in the minds of the people, and not until then, shall we see the death rate reduced much below where it is today, especially the infant death rate. It can be done; it is only a process of education. If we put education and sanitation together and push them far enough we can, as Dr. McGeachy says, do without vaccinations; but to stop vaccinations and depend entirely on sanitation might be treading on dangerous grounds. I believe we are coming, some day if sanitation continues to improve, to that point when typhoid fever will occur only occasionally in sporadic cases in this state. When this happens, the population will become so indifferent about typhoid vaccine that we will soon have a susceptible population. Then we will see what we have so frequently heard of in other sections of the United States—epidemics of typhoid fever. To eradicate typhoid fever and other filth-born diseases, we must have to some extent an immune population. Should we fail in this, I fear that we will some day to our regret experience severe epidemics of typhoid fever.

THE INTER-RELATION OF THE MOUTH AND HEALTH

ERNEST A. BRANCH, D.D.S., Raleigh

Mr. President and Ladies and Gentlemen:

I have in mind at this particular time three hundred thousand boys and girls in our schools. And at this season of the year, above all others, their mothers are becoming to be concerned (and in some few instances their fathers) and are beginning to ask these boys and girls if they are going to be promoted. And by the way that boy drops his eyes they know there is something wrong, and they go to see the teacher. The teacher says, "Yes, I think that boy is going to fail." Then the father becomes interested and goes to see the superintendent, and that is confirmed. And sometimes they go to town to see the county superintendent and ask if there is not some way in which that boy of theirs may be promoted in the school.

Now, I think it is a great pity that that parent did not become interested last September, and it reminds me very much of a man and his wife who wanted to build a home, a house to live in. They talked it over, and they went to see an architect, who told them he could put

their ideas on paper. In a few weeks they got together with the architect, and he showed them the front elevation of that building, the side elevation, and the rear elevation, and the specifications. They said it was exactly what they had in mind and decided they had better get a contractor, and they searched the country over and got the best contractor they could find, and he agreed to put up the building and asked them where. "At Podunk," they said. "And when shall I begin?" "On the first Monday in September." The contractor came and brought his workmen on the appointed day, and the couple met him. "Where is the material?" he asked, and they showed it to him. "Do you mean to say you want me to put up the building you have outlined and use those pine poles and straw?" "Yes," said they. That contractor would give that couple the horse-laugh and would turn on his heel and never take a tool out of his box.

Now, we have school buildings that would compare with the very best, and I am satisfied that we have teachers as good as any and better than many. And on the first Monday in September we gather at the school, at this splendid building, with this efficient corps of workers, and here we parents come with our children. We bring them, the lame, the halt, and the blind, and ask the teachers to make mental geniuses out of them, with a mentality that will compare with the very best; and they can not possibly do it. Those things, gentlemen, are revealed to us in the pre-school clinics that you are having now, and the physical defects that we might enumerate are familiar to you. But I want to talk about one physical defect that we find in that group of children that those parents are bringing, and you will find it more frequently than any other. I want to talk to you just a little bit about it. I shall take only a few minutes, because you are pushed for time, but I want to talk to you on the inter-relation of the mouth of that child and its health.

Nutrition, health, and the child's resistance to disease are all bound up together in the health of the teeth. Food can not be masticated properly without sound and painless teeth, and unmasticated food does not do its full duty to the child.

Pain from an abscessed tooth not only takes away the appetite and lessens the amount of food taken, but deprives the child of rest. In all these ways, plus the additional one of poisons being scattered throughout the body from an infected tooth, unhealthy mouths interfere with the physical and mental development of the child.

The temporary teeth are as important as permanent teeth. They should last until naturally shed—this usually takes place at from six to twelve years of age. Teeth need minerals supplied to them in the diet, and unless the child is fed foods with enough calcium and phosphorus in them the teeth can not be built firmly and of strong substance. Since the grinding surfaces have pits and grooves in them and ordinary cleaning is not well done, coarse, hard, polishing foods should be given them to work upon.

The exercise that coarse foods provide for the teeth and gums is good for them. The loss of any tooth must bring some degree of change. The first molars are called the *keystones* of the arch. They

are necessary for the normal formation of the completed jaw and the normal placement of the teeth. The loss of a first molar tooth means irregular placement and strain on other teeth, which often leads to early loss of more teeth. The loss of this tooth allows the adjacent teeth to tip into this space; the other teeth have to readjust themselves; and the natural relationships are disturbed. Teeth getting into the wrong positions interfere with the jaw movements. These abnormal conditions tend to produce injury to the tissues about the roots of the teeth. This injury makes a fertile place for the growth of germs, which begin the formation of the little pockets for pus along the roots, loosening of the teeth, and bleeding gums—which may work the beginning of so-called pyorrhea.

The importance of the first permanent molar to the health and the usefulness of the masticating machine can not be over emphasized.

At the age of eighteen all the permanent teeth are supposed to be in position, and nature has finished her work of building the masticating machine that will serve throughout life if proper care is observed and if the teeth have been built of good material.

It is, therefore, most essential during the prenatal life, babyhood, and childhood, up to the eighteenth year, that the diet contain tooth-building material. It is also essential that the temporary teeth be kept clean and free from decay and that there be no infection of the permanent teeth as they come into place. It is most important that the permanent teeth be kept clean and free from decay, not only to keep the masticating machine in good order but to prevent toothache, abscesses, and infections that may follow such conditions.

If some people could examine the interior of their mouths with the aid of a microscope they would probably be horrified.

Physical defects in the body of the child lessen its ability to resist or throw off infections. One defect can do great harm; and the more defects there are, the greater the danger.

It can not be questioned that healthy teeth in a little child have a great deal to do with his well-being, his lack of susceptibility to endangering children's diseases, and his physical development and happiness.

How often one who is fighting for life through hours of serious illness must hang on by the power of that intangible thing known as good resistance. With a healthy body in which every structure is normal, the average infectious disease will be warded off, and other types of sickness can be prevented from ever arising.

To have a well-rounded program we must include the teaching of mouth health.

Dr. James M. Parrott, Kinston: This paper by Dr. Branch is so remarkably good that while I can not discuss it I want to compliment Dr. Branch on presenting that paper. He certainly does present a paper with remarkable lucidity and clearness and withal pleasing.

President Ford: Dr. Hudson, will you open the discussion on this paper?

Dr. C. C. Hudson: Greensboro: Dr. Branch has given us a very pleasing paper on a very timely and quite interesting subject. It is

one in which all of us, as health officers, are deeply interested, but his discussion of it is so complete and so thorough that I really think it needs no further discussion from any of us. It is a complete presentation.

Dr. J. H. Epperson, Durham: There is just one thing I want to say, and I have a little hesitancy in saying it in the presence of Dr. Branch. Any of you who are interested in this phase of health work, I want to say, have missed a rare treat if you have not had Dr. Branch visit your county and talk to your parent-teacher associations and in your schools. We have had Dr. Branch visit us on several occasions, and we think he has been of great help to us. If you have not already done so, get him to come to your county and let him give your people the message he has given us.

President Ford: I want to say that those of you who have not heard Dr. Branch speak to the rural people, to the parents of the children and the children themselves in the schools, do not know what a human touch he has. He has a human touch that is convincing; he always gets them with him. That touch is so necessary in getting the coöperation of not only the parents and teachers but of the children themselves. They get enthusiastic and he gets the work done.

President Ford: The next number on our program is a paper by Dr. L. B. McBrayer, of Southern Pines, who is the executive secretary of the North Carolina Tuberculosis Association and also the secretary-treasurer of the Medical Society of the State of North Carolina. We shall be glad to hear now from Dr. McBrayer.

Dr. L. B. McBrayer, Southern Pines: I was just thinking that if Czar Burke could hear all the nice things we have said about Dr. Branch he would probably want to raise his salary, and they are all true. Dr. Branch, in addition to being an expert in the profession of dentistry, has a way of addressing the lay people that, in the slang phrase, gets the thing over to them and has a way of getting them to back him to the limit. I congratulate you, Dr. Branch, and I congratulate the State Board of Health and congratulate the people of North Carolina on the work Dr. Branch is doing.

I took for my subject, because the Secretary did not give me one, "Whence—Whither?"

"WHENCE—WHITHER"

L. B. McBrayer, M.D., F.A.C.P., Southern Pines

Twenty-one years ago, this Association was organized in the city of Charlotte under the title of "The North Carolina Health Officers Association." The outstanding subject of discussion at that meeting was the "whole time Health Officer and his salary." There was general agreement that Health work was of sufficient importance and should be of sufficient magnitude to require all the time of a medical man as Health Officer. One in authority proposed that we agree that $1800 per year was a proper salary for a whole time Health Officer, but the writer took the position that $1800 was entirely inadequate, and finally there was agreement that the minimum salary should not

be less than $2500 per annum and this was approved by the Medical Society of the State of North Carolina the following day. Now salaries of $6000 and above are quite common and compared with other things, this is probably in line with the $2500 of that day, and in my opinion, the people get much more than the worth of the money they pay.

And so we have come of age—we are 21. Perhaps we might well ask ourselves a few questions and then project our vision through our mental telescope into the future.

What have we accomplished? Yes, that question would be a good psychologic test, and I hear every one of you reciting promptly, quickly and rapidly the many accomplishments of the Health workers in North Carolina in the past 21 years, so I grade you 100 plus on that test, and a grand array it makes. Something in which this Association and every individual member and the entire population of our state can, may and do take justifiable pride.

In connection with the foregoing, it might be well to ask ourselves, have we, in this 21 years, organized and put into operation a full and complete program of Health work in a single county in North Carolina? If we have, let the successful Health Officer parade an outline of this work before us at this time. If not, why not, and when are we going to? Again, I get a prompt answer, we haven't had sufficient funds—correct again. But don't you think it is time, now that we are of age, that we were doing that thing?

Should we not revise our methods of preventing diphtheria? From figures furnished me by the State Board of Health, I learn that in 1928 there were 355 deaths in our state from diphtheria, but 90% or 317 of these occurred before the child entered school. In 1929 there were 324 deaths from this cause and 318 of these occurred before school age, again 90%. You answer, the family physician should immunize these children below school age; quite right, but does he do it? Have you made proper efforts to enlist his interest in this thing? Anyway, that is where the large part of this work lies.

What about the correction of physical defects? In 1928 and 1929 the State Board of Health inspected with their nurses 139,751 children in 2,277 schools in 41 counties and found 49.8% with tonsils sufficiently enlarged to be seen easily by a nurse; there was no doubt many more that needed the attention of a throat specialist, running the percentage well up toward 60.

If 50% of the school children have tonsils needing operation, this would total about 450,000. The tonsil clinic conducted by the State Board of Health since it was begun in 1919, now 11 years past, has operated on 20,095 tonsil cases. If they would do in one year what they have done in 11 years, that would still leave 430,000 needing operation. Likely this percentage would not hold good for high school pupils, but there are more than enough children under six years of age needing tonsil operations to much more than offset any deficit in high school pupils. What are we going to do about it? Well—there has been a great deal of fussing on the part of the throat men about this fine demonstration, which is purely an educational scheme. It isn't fair to say, you are wrong, you must stop this, without present-

ing a positive solution of the problem, so it is up to the doctors who oppose this to present a better solution. In my opinion, the State Medical Society and the County Medical Societies must assume this responsibility, for it is theirs. They owe the children of our state a careful, thorough examination and such treatment as they may need. Of course they should be paid for the work, and the State and County Boards of Health should lead them.

52,206 or 37.3% had diseased teeth, cavities frequently in the permanent teeth. The dental profession has a responsibility here.

22,229 or 16% were 10% or more underweight for their height and age.

15,612 or 11.1% had defects of vision, then there were 1% of these needing treatment for tuberculosis in a sanatorium, and 4% more that needed careful supervision in nutrition classes, treatment in preventorium, etc. Then there were other numbers (exact percentage unknown) who had hookworm and other intestinal parasites, malaria, etc. Dr. Shore thinks, judging from specimens sent to the State Laboratory of Hygiene, that hookworm infestation is not as heavy in the individual cases as formerly, but it would seem that a survey should be made in a few counties in order to determine this point, and also the percentage of general infestation. Then with sanitary toilets in general use, where water closets are not possible, it would seem that hookworm should be found in sporadic cases only, if and when those infected are properly treated.

Likely this year the percentage of undernourished children will show a decided increase. It requires more than a hot lunch, fine and important as that is, to handle this problem. Nutrition classes, properly conducted, produce results.

Is a nurse's inspection a sufficient examination for a school child or any other child? No criticism intended in this or any other statement made in this paper. The school inspection by the State Board of Health is a fine piece of work, but that question is fundamental and should receive the careful consideration that it deserves and it is up to us to offer a solution of the problem, if we answer that question in the negative.

It is a fact that if these children were cared for as they ought to be and as they deserve to be, from birth until six years, few of these defects and diseases would appear during the school age. What and when are the State and County Medical Societies and each and every physician going to do about it? Again led by the State Board of Health.

We have heard much in and from our General Assembly about raising an additional thirteen to fifteen million dollars in order that the State should take over the entire expense of the Grammar Schools without an advalorem tax on real estate. At this writing, April 10th, it looks as if they were going to back off from the proposition. This particular subject might be considered inappropriate for discussion here; but there is one phase of this subject that is not only our function to discuss, but our duty to solve, and in beginning a discussion of this phase, I desire to say that apparently our legislative finance

committee and our legislature was trying to fill the barrel at the faucet while the bung was wide open, and they did not see nor did they attempt to see the discharge from the bung.

According to the last printed report of Dr. A. T. Allen, State Superintendent of Public Instruction, the schools of the State cost in round numbers thirty-nine million dollars annually. The same report states that 37.6% of all children enrolled fail to pass their grades. That means that out of the thirty-nine million dollars paid annually teaching the school children of our state, $14,664,000.00, or in round numbers fifteen million dollars was and is wasted in teaching children a second year in the same grade they were in the previous year. In Moore County, which is about an average county for our state, Mr. Thomas, our efficient Superintendent of Schools, shows that in the five years just passed, the cost of teaching the children of Moore County was $854,000 and that $413,000 or nearly 50% had been spent in teaching repeaters.

The loss in money, great as it is, is infinitesimal compared with the loss to the children who are the repeaters, and this loss continues to pyramid every day of every year the child or later the adult lives.

Has any State or County Health Department ever attempted to follow through on this proposition and find out and correct the thing or things causing this canker of our civilization? Not to my knowledge. Don't you think it time we were doing this very thing? I do.

We know in a general way that disease and illness are responsible for the larger part of it. We know that acute colds cause more absences from school than any other illness, we know that hypertrophied tonsils, defective vision, undernourishment, hookworm, malaria, acute contagious diseases, etc., are responsible for much of it, just what per cent no one knows. We know that a certain percent, exact percentage unknown, fail to make their grades because of mental deficiencies.

It would take a coöperative effort to handle a thing of this kind properly—the State, City and County Health Departments; the State, City and County Departments of Education; the State and County Departments of Public Welfare; the State and County Medical Societies; the State and County Tuberculosis Association; the Extension Department of the State Sanatorium; the State and local Parent-Teachers Associations; the State and local Women's Clubs; the Department of Psychology of our greater University; the psychiatrists of our State institutions; the Departments of Vocational Training; Domestic Science, etc.

An outline for a tuberculosis control program for a county was presented at the last meeting of this association and should become a part of such a piece of work. The overhead is already provided and paid for. This could be put over in a county by such a combined effort without a great deal of additional expense.

Can the State and County Departments and organizations mentioned coöperate in such a piece of work? Why certainly. Will they? surely. An estimated saving in the annual school cost of some twelve million dollars or more would result, not to mention the improvement in the health, happiness, intelligence, productiveness in whatever voca-

tion these retarded children might choose, which would amount to many, many millions of dollars more. May we express the hope that the State Board of Health will lead the way.

Dr. McBrayer (after reading his paper): I happened to find out from Dr. Taylor, after this paper had been prepared, that the State Board of Health is thinking along this line. I can see in it the greatest piece of work that has ever been put over by any state board of health for the people of its state.

DISCUSSION

Dr. James M. Parrott, Kinston: I presume it is generally known that I am what you might term the "baby member" of the State Board of Health. My term of office expires day after tomorrow, I think, and whatever I may do I shall have to do in great haste. I was tremendously impressed by Dr. McBrayer's paper; in fact, perhaps like some of you, I might say I was astounded. A great deal of that we have known before, but it was not crystallized so that we might get it into our minds. I am not sure I agree with some of the conclusions of the doctor, but with the general propositions I agree.

This is a great subject. I have had a growing idea, if you will, for some time that after all is said and done, we have been to a large degree—perhaps larger, Mr. President, than we should, with our present limited knowledge—striking at the top of things rather than going down to the bottom. Now, what do I mean by that? You can destroy one fly in May, and it will be equal to destroying a million flies in September—or a billion; statisticians can figure that out. To go further; what is the fundamental thing that is underlying so many of our so-called acute diseases of childhood? I do not know but that there may be a deep, underlying thing under the acute exanthematous diseases of childhood. I am certain I do not know what it is, but I am sure that close study will uncover that one thing or two things or three things or five things, and then we can drive at it and correct it. For instance, this matter of enlarged tonsils. My conclusion is growing quite rapidly, based on my twenty-five years experience as a nose and throat man, the interest of a man not in sanitary science but interested in tonsil disturbances, that after all, the tonsil is not the primary thing itself; that is, the disease does not originate in the tonsil or does in only a small number of cases, in my opinion. Now, what is that thing that is causing all these tonsils to become disturbed? All of us who do a great deal of nose and throat work are rapidly coming to the conclusion that a child's tonsils, except under unusual and extraordinary conditions, should not be removed under seven years. Four or five years ago it was two or three years; we have been pushing the age up. Why? Because we have come to the conclusion that there is something underlying that is causing the trouble in the tonsil and that to remove the tonsil is to remove only the top of the thing and not the cause.

Take my distinguished friend, Dr. Branch. Why should all these teeth be troubled? I think there is an underlying thing there. Perhaps it may be diet. I think Dr. McBrayer has rendered an out-

standing service in presenting these things to us in such a splendid way that we begin to think along a constructive line, not in the line of removing the effect but of remedying the cause.

How much acute disease, after all, is due to an underlying factor—perhaps, again, errors in diet? We have known, our grandfathers knew, that if a child loaded up on chocolate candy and became constipated and the eliminative organs paralyzed it became very susceptible to colds. Why? Well, if that lowered resistance will bring about that condition in which the child is susceptible to acute coryza, which is well known to be a germ disease, why is not that general condition sufficient to bring the child into such low bodily condition that it will have diphtheria or whooping cough or scarlet fever much more easily than otherwise he would have it?

This matter of diet brings up a wonderful hope. We have given proportionately too much time to considering the question of the accuracy of things and did not worry about the proportions so much. Have we given any thought to the things in the food that ought not to be there? What things in the food are detrimental? Take a man, for instance, who is taking acetanilid and goes on taking it several times a day for ten, fifteen, or twenty days with apparently no disturbance. Then he falls sick and dies. Is there something in the food that might have some effect?

The things in Dr. McBrayer's paper are going to be the medicine of tomorrow; he is that far-sighted. It is what the public-health workers and physiologists and psychologists are going to undertake. We have brains enough here in North Carolina to do the trick; all we need is a Moses like yourself, sir (addressing Dr. McBrayer), to lead us out to the land of Canaan.

Dr. J. Roy Hege, Winston-Salem: I should like to say a word about Dr. McBrayer's paper. A few years ago we made a survey of the number of children that were needing attention as to physical defects. I reported then some very interesting information. We found at that time that the county was maintaining a school building costing approximately $50,000 and employing fifteen teachers to teach the children and heating and maintaining that building for the sole purpose of training repeaters. It was on the strength of that survey that we were granted seven school nurses to visit each county school each day. That is going on today. The superintendent of schools, being, of course, a member of the county board of health, was very much interested in knowing if this group of repeaters could not be eliminated. We have found this, which does not enter in necessarily from a public-health standpoint but more from a welfare standpoint; a nurse checking the absentees daily will get a lot of children in school that otherwise would not come; they do not play hookey quite so badly when there is a nurse to check up on them. The mother is more anxious to get them in school, because if they are absent that is almost prima facie evidence that they are sick, and that requires the nurse to visit the home that day or certainly within two or three days. I am quite sure our attendance is as good as in any county in the state or even better—that is, in the rural schools in Forsyth County. That

group of repeaters is decreasing. We are checking up on it now to see what has happened during the last two or three years with relation to the number of children and the grade. Each child's name and grade for the year are registered with the board of education. We will check our defects against that grade—without knowing anything about the grade, of course. We will check with the board of education each pupil's grade with his defects, whether he is a one-plus, two-plus, three-plus, or four-plus defect child. When those two lists are checked we shall have our data. There are repeaters enough that could be eliminated by the nurses of North Carolina to put a public-school nurse in every school of any size. Every thousand school children should have a nurse if the actual repeaters of the present day are to be eliminated. I do not hesitate to say that at all; I think it can be borne out. We can do the same things in the schools that we are doing on the roads; we are paying for gas and riding on concrete. We can put nurses in the schools and in a few years pay the nurses from the elimination of repeaters.

Dr. Parrott: From your experience, Dr. Hege, is it practicable for that to be done in the average ordinary school, the average eight-months consolidated school?

Dr. Hege: Yes, sir.

Dr. Parrott: At what additional cost?

Dr. Hege: After two years' time none, because you will have a nurse taking the place of one or two teachers.

Dr. Parrott: Are those children studied in their entirety?

Dr. Hege: They are examined by a physician.

President Ford: Are not the teachers that handle those repeaters as a rule specially trained for that purpose? At least, they acquire training through their interest.

Dr. Hege: Yes, that is true, especially of the vocational teachers.

At this point Secretary Register introduced Dr. Swindell, of Wilson, as one of the newest health officers in the Association.

Dr. James M. Parrott: Before going further I should like to make a suggestion (of course, I can not offer a motion in this body) that Dr. McBrayer's paper be furnished to the press with the request that they publish it—after next Sunday; I do not want to add any more confusion to that down in Raleigh.

Dr. J. A. Morris and Dr. C. C. Hudson moved to adopt the suggestion of Dr. Parrott, and this motion was seconded and carried.

President Ford: The next paper on our program is on a subject in which I am sure you are all interested, "Infectious Abortion of Cattle," and will be presented by our State Veterinarian, Dr. William Moore, of Raleigh.

INFECTIOUS ABORTION OF CATTLE

William Moore, D.V.M., Raleigh

Infectious Abortion of cattle is probably the most important disease of cattle in this State. It is not a new disease, having been recognized in Europe before the germ theory of disease was established. It has been known to exist in this country for many years, evidently imported with breeding cattle and likewise scattered throughout the United States. Schroeder and Cotton of the U. S. B. A. I. in 1911 in an attempt to demonstrate the T. B. organism in market milk, isolated B. Abortus which was found to be quite common. Infectious Abortion of cattle has not, until recently, been a problem in this state, for the reason that our dairy industry has been established during recent years. Prior to 1906 three-fourths of the counties in North Carolina were infected with the cattle tick, making a profitable cattle industry in those sections impossible. Tick eradication was completed in North Carolina in 1925 and bovine tuberculosis eradication in 1928 and through the efforts of the Dairy Extension Office, State and local Health Departments, and many other agencies, the importance of a dairy industry for our State and the value of dairy products in our diet resulted in a great dairy industry being established and which is now rapidly growing. To establish and maintain this dairy industry it was necessary to bring in from the older dairy sections breeding animals, many of which were affected with tuberculosis, abortion and other diseases. In recent years strict regulations covering cattle brought into the state have been adopted and we now require a tuberculin test for tuberculosis and a blood test for abortion, together with a general health certificate for all cattle brought into the State. The organism causing abortion, like the disease, is known by many names. Abortion Bacillus, B. Abortus, Bang's Bacillus, Brucella Abortus, etc. Discovered by Bang and his assistant, Stribolt, in Denmark in 1897, it is a small, rod-shaped, non-motile and non-spore forming organism; stains easily, but not uniformly with aqueous as well as with carbolized analine dyes and is gram negative. On proper media it grows well in the laboratory. It is a very versatile organism in that it causes most abortions in cows, causes weak calves, many of which die, lesions of the udder, enlarged joints of infected cows, much breeding trouble, temporary and permanent sterility, loss in milk production and diseased sexual organs of the bull. It also produces a similar disease in swine, is sometimes associated with abortion in mares and with poll evil and fistulous withers in horses and mules. It occasions a disease in chickens, lesions in guinea pigs resembling tuberculosis, and has recently been found to produce undulant fever in man.

It was at one time thought that this disease was chiefly transferred by the bull, but it is now believed that most infection takes place through the digestive tract. It may be transmitted by injection into the blood stream or into the vagina, through abrasions of the skin, and possibly through the unbroken skin. Dr. Cotton of the Experiment Station of the U. S. Bureau of Animal Industry has recently

shown that cultures dropped into the conjunctival sac invariably produce infection. From our experience with a large number of herds we believe that there is a wide difference in the virulence of this organism which cannot be accounted for by partial immunity. In some herds with rather heavy infection there are no abortions and little spread to negative animals, while in others there are many abortions and a rapid spread to healthy animals even though efforts are made to control the disease. This difference in virulence may in part account for the many failures of man to contract undulant fever from infected milk or from association with infected animals.

Many erroneous ideas regarding this disease and its dissemination have arisen, some of which have resulted in its further spread. One of these was that the disease was of short duration and that there was no danger of spreading infection after an animal failed to abort. This resulted in many infected animals being kept in, or added to, otherwise free herds with the consequent spread of infection.

Cows affected with infectious abortion manifest no common symptoms. Many such animals fail to abort and are otherwise apparently healthy, leaving diagnosis almost entirely to a blood test. While this disease has been found to affect most domestic animals, we have not found it prevalent in this State except in the cow, although we have tested many of them, including goats and swine. These two genera of animals, it is known, carry a very infectious type for man. Treatment of this disease is very unsatisfactory. Many medicinal substances were used and their value judged at a time when the disease had run its natural course. No drug or medicinal compound has proved to be effective in the cure or prevention of this disease. Treatment in many cases should be given the aborting animal, particularly when there is retention of after-birth or disease of the reproductive organs. The use of biologics, especially vaccines, has proven of value in establishing immunity, but frequently causes permanent infection which makes their administration undesirable. Recent experiments with vaccines on calves look promising.

Now for a brief discussion of undulant fever. In this, like many other controversial matters, there are two extreme views. One would deny the existence of undulant fever in man or its relation to abortion in cows, and the other would look upon abortion in cows as a serious menace to human health with undulant fever in man of great public health importance. I believe that there is a middle ground between these two views that is safe to stand on. If one will read the literature pertaining to this one must be convinced that there is some connection between the two disea es, yet we are unable to explain why there is so little undulant fever in man as compared to the prevalence of abortion in cows. If there is a connection between the two diseases, even though remote, it places one of our most important foods, milk, under a suspicion which is an undesirable situation for our struggling dairy industry. From the work that we have done in connection with abortion in cattle, we believe that it causes enough economic loss to justify the trouble and expense necessary to eradicate it. The possibility of the

disease being transmitted to man is an additional reason for its eradication.

I can somewhat appreciate the position of health officials in this matter and realize that they would not knowingly do anything that would restrict the supply of our greatest foods, milk and other dairy products; yet we must reckon with a sometimes hysterical public that would force a more hurtful remedy than the condition which we attempt to correct. I am not opposed to pasteurization for I realize its advantages under certain conditions; however, I also realize that in many instances compulsory pasteurization leads to monopoly of a milk supply. If it is argued that pasteurization is necessary for the control of undulant fever, then this will not take care of the situation in North Carolina because this state is largely rural and pasteurized milk is not available to these sections. If any animal disease is dangerous to man it must be eliminated at its source. This is true of bovine tuberculosis and equally true of other animal diseases. From the work that has been done we have gained sufficient knowledge to enable us to control and ultimately eradicate this disease from a herd, and we believe that the economic loss caused by the disease justifies the expense and trouble. The control and eradication is based on the agglutination test, which is a very accurate means of diagnosis, and segregation, with the application of adequate sanitary measures. This test does not tell us all we would like to know, but it does give us an index for the proper handling of the herd. By the use of the blood test, separation and proper sanitation, with the full coöperation of the herd owner, the disease can be controlled. I would not recommend the adoption of this work on a large scale or set the completion of it in a given short time, but would urge herd owners to begin now to eliminate this disease from their herds. The facts that infected animals may be kept isolated on the same premises with non-infected animals without great danger of spreading infection, and that healthy cows may be raised from such infected animals, offer an opportunity of eradicating this disease by elimination and without great financial loss. Health Departments can do much to encourage this work by discussing it with their dairy men, giving them assurance that no drastic action will be adopted, in the event of their undertaking the program of eradication which is here recommended.

DISCUSSION

President Ford: I see that Mr. H. E. Miller, Chief of the Bureau of Engineering and Inspection of the State Board of Health, is present, and I shall ask him to say a few words from the point of view of the State Board of Health.

Mr. H. E. Miller, Raleigh: I have had opportunity to be in very close touch with this matter, and I want to say that Dr. Moore and his co-workers have carried on their work in very close coöperation with the local and state health departments. The main thing I should like to say in comment on Dr. Moore's paper is to offer a caution to health officers against undertaking to do something when they do not know what they are trying to do. As Dr. Moore brought out, there

is apparently a connection between the disease in the animal and in man. The indications are that the frequency of transmission must be very, very limited. For instance, we have one herd in a state institution with about 56 per cent positive reactors. There are some 1,600 persons in that institution, many of them having been there for a very long time. The management of that institution has been very diligent in providing adequate diet for its inmates. I do not believe there is a case of undulant fever in that institution, nor has there been one. It is possible that the disease is not recognized, but so far as we know there have been very few cases in the state. We must realize that it is a problem in which we know so little in regard to the exact relation and know so little of the nature of the danger we are dealing with that one can consider, on the one hand, that it is a matter of relativity, so far as we are concerned, as a public-health question, and can consider, on the other hand, that milk is one of our most important and most essential elements of diet. If anything destroys the public confidence in milk unnecessarily a tremendous amount of damage will have been done—a damage, in my opinion, with which the possible spread of undulant fever can not at all be compared.

Then we must recognize another thing—the practical, economic side of the thing, that if we want more milk produced and better milk produced we must have a thriving dairy industry. To use a slang phrase, as Dr. McBrayer said a while ago, we should not go off half cocked on the matter, as has occurred in some instances. With our present state of knowledge I doubt if we could accomplish very much at this time, and we certainly shall have done a tremendous amount of harm. My own view is that we should all work very diligently with our own facilities and in coöperation with the Department of Agriculture to reach some working basis. I think Dr. Moore's department has gone about this matter in a very sane way by educating the dairymen, and in some communities they have gone about quietly to gradually eliminate all infected animals from the herds. It will, of course, take time to do that, but from the information we have at present that seems to be the best solution. As Dr. Moore has pointed out, in North Carolina we can not solve the matter entirely by pasteurization. There are some communities, such as this one, in which it is possible to have the entire milk supply pasteurized, but that is possible in only a few communities. So I do not think we should attempt to resort to that measure except where the situation in this and other large communities will permit it.

The main thing I should like to bring out in discussing Dr. Moore's paper is the matter of caution.

Dr. John H. Hamilton, Wilmington: I think there have been probably more people interested in making an investigation of undulant fever than have ever before tackled any public-health problem. People have been working in feverish haste to contribute to our knowledge of this disease, which is to us relatively a new disease.

I have been interested in undulant fever, or abortus fever, for the last five years. I think I read a paper before the State Medical Society on undulant fever. At that time we thought undulant fever

was going to be a public-health problem of considerable magnitude. I think most of our leaders in this field of investigation now feel it is a condition of minor public-health importance. Hardy, of Iowa, has probably made more investigation of undulant fever than any other man in the country. He has gone into the state of Iowa, which has approximately about the same population as North Carolina, and has discovered that about four hundred cases have occurred there in the last three or four years. He has found that a great deal of this undulant fever is due to the porcine type of the organism. We have conducted a very careful search for undulant fever in our county, a county with about 42,000 people in it and with about sixty per cent of those people drinking milk that we know to come from herds infected with the Brucella abortus; and we have found exactly one case that we could say definitely was infected with undulant fever. That person was drinking milk from the family cow. I believe if we have a problem of undulant fever in North Carolina it is much greater among the people drinking milk from individually owned cows rather than from dairies, where the milk from infected cows, if any, is diluted with milk from uninfected cows.

I should like to supplement what Mr. Miller said by saying that I believe far greater damage has been caused by malnutrition due to failure to drink milk than to infection caused by drinking contaminated milk. I do not mean to advocate contaminated milk, but I think malnutrition is a far greater problem.

Dr. L. B. McBrayer, Southern Pines: I want to express my appreciation, so far as I can, and express the appreciation of the people of North Carolina, particularly those of us who are interested in the prevention of disease and in the medical profession, of the work that Dr. Moore and his co-workers have been doing all along the line. I remember on one occasion I found it necessary to buy some thoroughbred cows in Massachusetts. Knowing something about it (having absorbed something from Dr. Moore along the way), I asked: "Do you furnish a certificate of freedom from tuberculosis and general good health?" "Yes," they said, "we will do that." "Then," I said, "I want the privilege of retesting these cows within ninety days, and if they are positive to tuberculin I want to send them back to you." "Oh, no," they said, "we can not do that; we could not think of doing that. You might take them down there and put them in your herd that already has tuberculosis and infect them." "Well," I said, "I can furnish a certificate from Dr. Moore, the State Veterinarian, that the herd is tuberculosis-free." "Oh, well, all right, if you can do that we will agree." So the matter was handled in that way.

With the work Dr. Moore and his assistants have done they have just about cleaned up all the herds in North Carolina in the matter of tuberculosis. Now, the same law that applies to the cow and the calf applies to folks. I am just wondering when we are going to do that with children. Then we come along with this scientific work they have been doing on the Bang bacillus and infection from it. They do not want to go off half cocked, but they have done a fine piece of

work on it, and I expect by the time we meet again or certainly within the next two or three years we shall know a great deal more about the infection in cattle and hogs and people than we do now.

Dr. Moore has done a fine piece of work on it, and I just wanted to say that word of appreciation.

On motion of Dr. R. S. McGeachy, seconded by Dr. J. A. Morris and duly carried, the following resolution was adopted:

RESOLVED: that the North Carolina Public Health Association petition the State Board of Health to take under consideration the matter of changing the regulation in regard to the control of German measles from quarantine to placarding, putting it in the same category as chicken-pox.

The President announced the appointment of the following committees:

Committee on Nominations: Dr. J. Roy Hege, Dr. A. C. Bulla, Dr. C. C. Hudson.

Committee on the President's Address: Dr. R. L. Carlton, Dr. C. W. Armstrong, Dr. R. S. McGeachy.

Committee on Resolutions: Dr. C. C. Hudson, Dr. John H. Hamilton, Dr. Sumner.

The program up to this time having been completed, and there being no further business to come up, the Association then adjourned, to meet at eight o'clock p. m.

The Third Session of the North Carolina Public Health Association was called to order by the President, Dr. D. E. Ford, at 8 p. m.

The first item on the program was an address by Dr. Morris Fishbein of Chicago, Editor, Journal of the American Medical Association and of Hygeia. Dr. Fishbein delivered a most splendid and instructive address. He spoke so rapidly, as is his custom, that the reporter could not take it.

Dr. Carlton presented a resolution as follows:

RESOLVED, that the North Carolina Public Health Association request that the State Board of Health furnish toxin and anti-toxin to county and city health departments without charge.

The Secretary was instructed to transmit this resolution to the State Board of Health. Resolution was unanimously adopted.

The Secretary was instructed to write Mrs. Laughinghouse and Mrs. Thompson a letter expressing the loss to the Society in the death of Drs. Laughinghouse and Thompson and express our sympathy to the loved ones.

On motion, the thanks and appreciation of the Society were extended to Mr. George Watts Hill for the splendid barbecue dinner and other courtesies shown at his splendid Quail Roost Farm. The Secretary was instructed to notify Mr. Hill of this action.

The Committee on Nominations made the following report:

President, Dr. J. H. Epperson, Durham.
Vice-President, Dr. C. N. Sisk, Rockingham.
Secretary-Treasurer, Dr. Z. P. Mitchell, Weldon.

No further business appearing, on motion adjourned *sine die.*

ALPHABETICAL LIST OF FELLOWS FOR 1931
WITH POSTOFFICE ADDRESSES

Name	*Address*
*Abel, J. F., (Hon.)	Waynesville
Abernathy, H. N., (Hon.)	Charlotte
*Abernathy, Miles B.	Reidsville
*Abernethy, Claude O.	Raleigh
*Abernethy, E. A.	Chapel Hill
*Abernethy, Wm. Borden	Chapel Hill
Achard, Lucien	Morganton
*Adams, C. A.	Durham
Adams, Charles E.	Gastonia
Adams, Edw. E.	Murphy
Adams, J. L.	Asheville
Adams, L. C.	La Grange
*Adams, M. R. (Hon.)	Statesville
*Adams, N. B.	Murphy
Ader, O. L.	Walkertown
*Adkins, M. T.	Durham
Alexander, Geo.	Asheville
*Alexander, James M.	Statesville
Alexander, Jas. R. (Hon.)	Charlotte
Alexander, M. Janet	Montgomery India (Mecklenburg Co.)
*Allan, William	Charlotte
*Allen, Chas. I.	Wadesboro
Allen, Jos. A.	New London
Allen, M. H.	Cramerton
*Allen, W. O.	Hendersonville
*Allgood, R. A.	Fayetteville
Allhands, John M.	Cliffside
*Alyea, Edwin P.	Durham
Ambler, Chase P. (Hon.)	Asheville
*Amoss, Harold L.	Durham
*Anders, McT. G. (Hon.)	Gastonia
*Anderson, Albert (Hon.)	Raleigh
Anderson, Chas. A. (Hon.)	Burlington
Anderson, James A.	Gastonia
Anderson, L. L.	Madison
*Anderson, Thomas Eli (Hon.)	Statesville
*Anderson, W. B.	Durham
*Anderson, Wade H.	Wilson
*Andrews, E. D.	Salisbury
Angel, Frank	Franklin
Anthony, J. E.	Kings Mountain
*Archer, Isaac J.	Black Mountain
*Armstrong, C. W.	Salisbury
*Asbill, David S.	Statesville
Ashburn, C. W.	Statesville
*Ashby, E. C.	Mount Airy
*Ashby, J. W.	Raleigh
Ashe, J. R.	Charlotte
Ashecraft, J. E.	Fayetteville
*Ashworth, B. L. (Hon.)	Marion
*Ashworth, W. C. (Hon.)	Greensboro
Austin, D. R.	Charlotte
Austin, Frederick De Costa	Charlotte
Austin, J. W., OALR	High Point
*Averitt, H. O.	Cameron
*Averitt, K. G. (Hon.)	Cedar Creek
Aycock, F. M.	Princeton
Aydlett, H. T.	Greensboro
Aydlette, Jos. P.	Earl
*Baggett, Leaman	Whiteville
Baier, Geo. F., Jr.	W. Asheville
*Bailey, C. W.	Rocky Mount
Baker, David	Fort Bragg
Baker, Horace M.	Lumberton
Baker, J. M. (Hon.)	Tarboro
Baker, W. E.	Arden
*Bandy, W. G.	Lincolnton
*Banner, A. C., OALR	Greensboro
*Banner, Chas. W., OALR (Hon.)	Greensboro
*Barbee, G. S.	Zebulon
Barber, Y. M.	Macclesfield
*Barefoot, Graham B.	Wilmington
Barker, C. S.	New Bern
Barrett, H. P.	Charlotte
*Barrett, J. M.	Greenville
*Barron, A. A.	Charlotte
*Basnight, Thos. G.	Stokes
*Bass, H. H.	Durham
Bass, Spencer P.	Tarboro
*Bass, H. H., Jr.	Henderson

*Present at 1931 Meeting at Durham.

Name	*Address*
Battle, Geo. C.	Asheville
Battle, Ivan P.	Rocky Mount
*Battle, John T. J. (Hon.)	Greensboro
Battle, N. P.	Rocky Mount
Baynes, R. H.	Durham
*Beall, L. G.	Black Mountain
Beam, H. M.	Roxboro
*Beam, R. S., OALR	Lumberton
*Beasley, E. B.	Fountain
*Beckwith, R. P.	Roanoke Rapids
Beers, David L.	Asheville
Belk, Geo. W.	Gastonia
*Bell, A. E.	Mooresville
*Bell, Carl W.	Raleigh
*Bell, F. O.	Burlington
*Bell, J. C.	Maysville
*Bell, G. E.	Wilson
Bellamy, Robert H.	Wilmington
Benbow, E. V.	Winston-Salem
*Bender, E. L.	New Bern
Bennett, E. C.	Elizabethtown
Bennett, Jos. H.	Wadesboro
Benthall, R. F.	Aulander
Bernard, Holman	Pinnacle
Berry, John	Greensboro
*Best, Benj. W.	Greensboro
Best, D. E.	Goldsboro
Best, Henry B.	Wilson
Biggs, Montgomery H.	Rutherfordton
*Bigler, V. L.	Albemarle
*Billings, G. M.	Morganton
Bingham, Geo. P.	Marion
Bitting, Numa Duncan	Durham
*Bittinger, S. M.	Sanatorium
*Bizzell, M. E.	Goldsboro
*Bizzell, Thos. M.	Goldsboro
Black, George Wm.	Pineville
Black, O. R.	Landis
Blackshear, T. J.	Wilson
Blake, J. F.	Chadbourn
Blair, Andrew	Charlotte
*Blair, A. McNiel	Southern Pines
*Blair, J. L.	Gastonia
Blair, M. P.	Marshville
Blalock, B. K.	North Charlotte
Blanchard, T. W.	Hobbsville
Blue, A. McN.	Carthage
*Blue, Waylon	Jonesboro
Blumberg, Alfred	Oteen

Name	*Address*
Boaz, Thos. A.	Stoneville
*Boddie, Needham P. (Hon.)	Durham
Boice, E. S.	Rocky Mount
Bolt, C. A.	Morrisville
Bonner, H. M.	Greenville
*Bonner, J. B.	Aurora
*Bonner, K. P. B.	Morehead City
*Bonner, O. B., OALR	High Point
*Booker, Edwin N.	Selma
*Booker, L. S.	Durham
*Boone, W. H.	Durham
*Boone, W. W.	Durham
*Bost, T. C.	Charlotte
*Bostic, Wm. C.	Forest City
Bostic, W. C., Jr.	Forest City
*Bowers, M. A.	Winston-Salem
*Bowles, Francis N.	Durham
Bowman, C. R.	Kannapolis
*Bowman, E. L.	McDonalds
Bowman, H. E.	Aberdeen
Bowman, H. P.	Greensboro
Bown, Herbert H.	Asheville
Boyles, A. C.	Lowgap
Braddy, Wade H.	Burlington
*Bradford, W. Z.	Brooklyn
Bradshaw, T. G.	Wilson
*Bradsher, J. S.	Stovall
*Brantley, Hassell	Spring Hope
*Brantley, J. C.	Spring Hope
*Brawley, M. H., OALR	Salisbury
*Bray, T. L.	Plymouth
*Brenizer, A. G., Jr.	Charlotte
*Brewer, J. S.	Roseboro
*Brewton, W. A.	Enka
*Bridger, D. H.	Bladenboro
*Bridges, D. T.	Lattimore
*Brinkley, H. M.	Durham
Brinn, T. P.	Hertford
Bristow, C. O.	Rockingham
Britt, C. S.	Charlotte
*Britt, J. N.	Lumberton
*Britt, T. C.	Washington
*Broadway, R. E.	Tarboro
*Brockmann, Harry L.	High Point
*Brooks, B. U.	Durham
*Brooks, R. E.	Burlington
Brookshire, H. G.	Asheville
Broun, M. S., OALR	Asheville
Brown, C. E.	Salisbury

Name	*Address*
Brown, F. B.	Winston-Salem
Brown, G. A. (Hon.)	Mt. Ulla
Brown, G. W.	Raeford
*Brown, J. P.	Fairmont
Brown, J. S. (Hon.)	Hendersonville
Brown, Kermit	Asheville
*Brown, W. M. B.	Greenville
Brownsberger, John F.	Asheville
Brownson, Wm. C. (Hon.)	Asheville
*Bryan, Lorenzo D.	Snead's Ferry
Buchanan, L. T.	Laurinburg
Buck, David M.	Asheville
Buckner, J. M.	Swannanoa
Buffaloe, J. S.	Garner
*Bugg, C. R.	Raleigh
*Buie, Roderick M.	Greensboro
*Bulla, A. C.	Raleigh
Bulla, M. S.	Elizabeth City
*Bullard, G. F.	Elizabethtown
*Bullitt, J. B.	Chapel Hill
Bullock, Thomas C.	Autryville
*Bulluck, Ernest S.	Wilmington
Bunn, J. J.	Mt. Pleasant
Burleson, W. B.	Plumtree
Burleson, L. N.	Cabarrus
Burns, J. E.	Concord
*Burress, D. A.	High Point
*Burrus, John T. (Hon.)	High Point
Burt, B. W.	Holly Springs
*Burt, S. P.	Louisburg
Busby, Julian G.	Salisbury
*Butler, Leroy J.	Winston-Salem
*Butt, R. B.	Marion
Byerly, Andrew B.	Cooleemee
*Bynum, John (Hon.)	Winston-Salem
*Byrd, W. C.	Morrisville
Caddell, G. C.	Hoffman
Caldwell, D. G.	Concord
*Campbell, Alton C.	Raleigh
*Campbell, A. S.	Durham
Campbell, Jas. I.	Norwood
Campbell, J. W.	Gastonia
Candler, Chas. Z.	Sylva
Carter, Thos. L.	Gatesville
*Carlton, Romulus L.	Winston-Salem
*Carlyle, J. B.	Burlington
Carmichael, T. W.	Rowland
*Carpenter, Coy C.	Wake Forest
*Carr, Eugene M.	Asheville
*Carr, M. L.	LaGrange
*Carr, Ransom Lee	Rose Hill
*Carrington, G. L.	Burlington
Carroll, E. D. Dixon (Hon.)	Raleigh
Carroll, F. W.	Hookerton
Carroll, John William	Wallace
*Carter, H. W., OALR	Washington
Carter, P. C.	Madison
Castelloe, Cola	Windsor
*Casstevens, J. C.	Winston-Salem
*Casteen, Kenan	Leaksville
*Cater, C. D.	Greensboro
Caviness, Zebulon M.	Raleigh
*Caviness, V. S.	Raleigh
Chadwick, W. S.	Beaufort
*Chester, P. J., OALR	Fayetteville
*Cheek, C. E.	Fuquay Springs
Cheesborough, Thos. P. (Hon.)	Biltmore
*Chiles, George G.	Durham
Choate, J. W.	Salisbury
Clark, D. D.	Clarkton
Clark, E. S.	Clarkton
Clark, H. S.	Asheville
*Clement, Edward B., OALR,	Salisbury
*Cliff, B. F.	Hendersonville
Clyatt, Claude Eugene	Denton
*Cobb, Donnell B.	Goldsboro
*Cobb, Wm. H., Jr.	Goldsboro
*Cocke, C. H.	Asheville
Cocke, E. R.	Asheville
Cocke, Jere E.	Asheville
*Coddington, H. A.	Wilmington
Coe, Samuel S.	High Point
Colby, C. DeW.	Asheville
*Cole, Walter F.	Greensboro
Coleman, G. S.	Kenly
Collings, Ruth M.	Greensboro
*Combs, Howard J.	Elizabeth City
Combs, Jos. J.	Raleigh
*Cook, H. L.	Greensboro
*Cook, J. L.	Winston-Salem
*Cooke, G. C.	Winston-Salem
*Cooper, G. M.	Raleigh
Coppedge, N. P.	Candor
Coppedge, T. O.	Nashville
*Coppridge, W. M.	Durham

Name	*Address*
Corbett, J. P.	Swansboro
*Cornwell, A. M.	Lincolnton
Corpening, O. J.	Granite Falls
Costner, Thos. F.	Lumberton
*Costner, W. V.	Lincolnton
Cotten, Clyde E. (Hon.)	Asheville
Couch, V. F.	Winston-Salem
Council, J. B. (Hon.)	Salisbury
Covington, Platt W., 1479 Harrison St., Salt Lake City, Utah (Anson Co.)	
Cox, Benj. F.	New London
Cox, B. T.	Winterville
Cox, Thomas A.	Hertford
Cox, E. L. (Hon.)	Jacksonville
*Cox, G. S.	Tabor
*Cozart, B. F.	Reidsville
*Cozart, S. R.	Greensboro
*Cozart, W. S.	Fuquay Springs
Craddock, A. B.	Asheville
Craft, C. C.	Hickory
*Craig, S. Douglas	Winston-Salem
Cranmer, J. B.	Wilmington
*Craven, Thomas	Huntersville
*Craven, W. W.	Charlotte
*Crawford, Robt. H.	Rutherfordton
Crawford, W. J.	Goldsboro
*Crisp, S. M.	Greenville
Cromartie, R. S.	Elizabethtown
Croom, G. H.	Asheville
*Crouch, A. McR.	Wilmington
Crouch, T. D.	Stony Point
Crow, S. L.	Asheville
*Crowell, A. J. (Hon.)	Charlotte
*Crowell, L. A. (Hon.)	Lincolnton
*Crowell, L. A., Jr.	Sanatorium
Crowell, W. H.	Whiteville
*Crumpler, Paul	Clinton
Cummings, M. P.	Reidsville
*Currie, D. S.	Parkton
*Cutchin, J. Henry	Whitakers
*Dale, G. C.	Goldsboro
Daligny, Charles (Hon.)	Troy
Dalton, Wm. N.	Winston-Salem
*Daniel, N. C.	Oxford
*Daniels, O. C., OALR	Oriental
Daniels, R. L.	New Bern
Darden, D. B.	Stantonsburg
*Darden, O. B.	Richmond, Va. (Durham Co.)
Daughtridge, A. L.	Rocky Mount
Daugherty, J. E., 658 Park Place, Brooklyn, N. Y. (Forsyth Co.)	
*Davidian, Varton A.	Smithfield
Davidson, Jno. E. S. (Hon.)	Charlotte
Davis, F. M.	Canton
Davis, George	Beaufort
Davis, H. C.	Wilmington
*Davis, Jas. W.	Statesville
Davis, J. Franklin	High Falls
Davis, J. M.	Wadesboro
*Davis, P. B., Sheraton Hotel,	High Point
*Davis, R. B.	Greensboro
*Davis, Stephen W.	Charlotte
*Davis, Thomas W., OALR	Winston-Salem
*Davison, Wilburt C.	Durham
Dawson, W. E.	Hookerton
Deans, A. W.	Battleboro
DeArmon, J. McC. (Hon.)	Charlotte
DeLaney, C. O.	Winston-Salem
DeLoatch, M. W.	Tarboro
*Dees, D. A., OALR	Bayboro
*Dees, R. E.	Greensboro
*Dees, Rigdon O.	Greensboro
Denton, A. L.	Castalia
Denson, H. A.	Bennett
*Dewar, William B.	Raleigh
Deyton, John W.	Asheville
*Dick, Julius V.	Gibsonville
Dickie, J. W.	Southern Pines
*Dickinson, E. T. (Hon.)	Wilson
Dillard. G. P.	Draper
*Dixon, G. G.	Ayden
Dixon, Hubert C.	Madison
Dixon, Joseph	Greenville
*Dixon, W. H.	Rocky Mount
*Dixon, Wm. H.	Kinston
*Donnelly, J.	Huntersville
Drewry, Wm. H.	Grimesland
Duffy, R. N.	New Bern
Duguid, James	Vanceboro
Duguid, Jos. W.	Dover
Duncan, Amos C.	Forest City
*Duncan, S. A.	Benson

Name	*Address*
Dunlap, L. V.	Albemarle
*Durham, C. W.	Jackson Springs
Dyer, John W.	High Point
*Eagle, J. C.	Spencer
*Eagle, Watt W.	Durham
Eagles, Charles S.	Wilson
Easley, P. S.	Statesville
*Easom, H. F.	Sanatorium
Eckel, O. F.	Asheville
Eddleman, Hall M. (Hon.)	Gastonia
Edgerton, Jas. L. (Hon.)	Hendersonville
Edwards, B. O.	Asheville
Edwards, C. J.	Raleigh
Edwards, C. P.	Asheville
Edwards, E. C.	Aberdeen
Edwards, F. D.	Lawndale, Rt. 1
*Edwards, J. D.	Siler City
Edwards, V. E.	Greensboro
*Eldridge, Chas. P.	Raleigh
*Elias, Lewis W.	Asheville
Eller, Albert J.	Readybranch
*Ellington, A. J., OALR	Burlington
Elliott, A. H.	Wilmington
*Elliott, J. A.	Charlotte
*Elliott, J. C.	Oxford
*Elliott, W. F., OALR	Lincolnton
Ellis, Frank A.	Salisbury
Ellis, R. C. (Hon.)	Shelby
English, E. S.	Brevard
Erwin, Evan A.	Laurinburg
Eskew, D. C.	Winston-Salem
*Evans, J. E.	Wilmington
*Evans, L. B.	Windsor
*Everett, A. C.	Rockingham
Faison, Yates W.	Charlotte
*Farrington, R. K.	Thomasville
Farrior, J. W.	Warsaw
*Farthing, L. E.	Wilmington
*Fassett, Burton W., OALR	Durham
Fauntleroy, Jas. W.	Zirconia
Fay, Scott S.	W. Asheville
Fearing, Isaiah	Elizabeth City
Felton, R. L.	Carthage
*Felts, Robt. L.	Durham
*Fenner, Edwin F.	Henderson
Ferebee, C. G.	Morehead City
*Ferguson, R. T.	Charlotte
Fetner, L. M.	Charlotte
*Fields, Leonard E.	Chapel Hill
*Finch, O. E.	Raleigh
Fitch, W. E.	French Lick, Ind. (Granville Co.)
*Fitzgerald, J. H., OALR	Smithfield
*Flagge, Philip W.	High Point
Fleetwood, Joe A.	Conway
*Fleming, M. I.	Rocky Mount
Flemming, Giles M.	Cleveland
Flippin, J. M.	Hickory
Flippin, Samuel T. (Hon.)	Siloam
Flowe, R. Frank	Kannapolis
*Flowers, Clarence A.	Wendell
*Flowers, C. E.	Zebulon
Floyd, H. T.	Oteen
Floyd, L. D.	Fair Bluff
Folger, P. B.	Dobson
*Ford, D. E.	New Bern
Foster, H. H.	Norlina
*Foster, J. F.	Sanford
*Fox, N. A.	Stokesdale
*Fox, Robert Eugene	Asheville
*Fox, P. G.	Raleigh
Francis, Wm. G.	Waynesville
Frazier, J. W.	Badin
*Freeman, J. D., OALR	Wilmington
*Freeman, Roma	Bailey
Freeman, R. H.	Raleigh
Freeman, Wm. T.	Biltmore
Fresh, W. M.	Hickory
*Frizzelle, M. T.	Ayden
Fryar, C. H.	Oak Ridge
Frye, Glenn R.	Hickory
*Furman, Wm. H.	Henderson
Futrell, L. M.	Murfreesboro
Futrell, W. E.	Greenville
*Gage, L. G.	Charlotte
*Gallant, Robt. M.	Charlotte
Galloway, W. C. (Hon.) OALR,	Wilmington
Gamble, J. F.	Lincolnton
Gamble, J. R.	Lincolnton
*Gambrell, Grover C.	Lexington
*Garren, R. H., OALR	Monroe
Garrenton, Cecil	Bethel
*Garrett, F. B.	Rockingham

Name	*Address*
*Garrison, D. A. (Hon.)	Gastonia
*Garriss, F. H.	Lewiston
Garvey, R. R.	Winston-Salem
Gaskins, J. S.	Albemarle
Gaskins, Lewis R.	Albemarle
Gaul, Jno. Stuart	Charlotte
Gaw, L. B.	Greensboro
*Geddie, K. B.	High Point
*Gentry, Geo. W.	Roxboro
*George, John C.	Oteen
*Gibbon, James	Charlotte
*Gibbon, Robert L. (Hon.)	Charlotte
*Gibbs, N. M.	New Bern
Gibson, John S.	Gibson
*Gibson, M. R., OALR	Raleigh
*Gilmore, C. M.	Greensboro
Gilmore, W. D.	Howell, Mich. (Iredell-Alexander)
Gilreath, Frank H. (Hon.)	N. Wilkesboro
Glascock, Joy H.	Greensboro
Glenn, C. F.	Rutherfordton
*Glenn, Lucius N.	Gastonia
Godwin, G. C.	Oteen
Gold, Ben	Shelby
Gold, Chas. F.	Rutherfordton
Gold, T. B.	Shelby
*Goley, Willard Coe	Graham
*Goley, Wm. Rankin (Hon.)	Graham
Goley, Wm. R.	Shallotte
Goode, T. V.	Statesville
Gooding, G. V.	Kenansville
*Goodman, A. B.	Lenoir
Goodwin, A. W. (Hon.)	Raleigh
*Goodwin, O. S.	Apex
Gordon, Faith F.	Greensboro
*Gorham, H. J.	Durham
Goudelock, Jno. J.	Monroe
*Goudge, Mabel E.	West Durham
Gouger, Geo. J. (Hon.)	Concord
*Gove, Anna M. (Hon.)	Greensboro
*Grady, Jas. C. (Hon.)	Kenly
*Grady, Leland V.	Wilson, Rt. 2
Grady, Wm. Earle (Hon.)	Tryon
Grantham, Wm. L.	Asheville
Gray, Eugene P.	Winston-Salem
Grayson, C. S.	High Point
Green, J. C.	Greenville
*Green, Thos. M.	Wilmington
*Green, Wm. W.	Tarboro
*Greene, Jos. B., OALR	Asheville
Greenwood, A. B.	Asheville
*Greenwood, S. E.	Fletcher
*Gregg, A. D.	Liberty
Grier, Charles T.	Shelter Island Heights, N. Y. (Moore Co.)
Griffin, H. L.	Star
Griffin, M. A.	Asheville
*Griffin, W. R.	Asheville
Griffith, F. W.	Asheville
Griffith, L. M., OALR	Asheville
Griggs, W. T.	Poplar Branch
Grimes, W. L.	Winston-Salem
*Groome, J. G.	High Point
Groves, R. B.	Lowell
Gwyn, H. L.	Yanceyville
*Hackney, Ben H.	Lucama
Hagaman, J. B.	Boone
*Halford, Jos. W.	Lillington
Hall, James S.	Wilmington
Hamer, Douglas, Jr.	Lenoir
*Hamilton, John H.	Wilmington
*Hammond, A. F.	Pollocksville
Hand, Edgar H.	Charlotte
Hanes, F. M.	Winston-Salem
Hanes, J. L.	Pine Hall
*Harbison, J. W.	Shelby
*Hardee, W. P.	Durham
*Harden, Boyd	Burlington
*Harden, Graham	Burlington
*Harden, R. N.	Greensboro
*Hardin, E. R.	Lumberton
Hardin, R. H.	Banner Elk
*Harding, S. A.	Mocksville
Harper, J. H.	Snow Hill
*Harrell, S. N.	Tarboro
Harrell, W. H.	Creswell
Harrill, L. B.	Caroleen
Harris, Arthur Graham	Fairfield
*Harris, F. R. (Hon.)	Henderson
Harris, J. H.	Raleigh
*Harris, W. T.	Troy
Harrison, Edmund (Hon.)	Greensboro
*Harrison, Edward T.	High Point
Harrison, H. H.	Asheville

Name	*Address*
Harriss, Andrew H. (Hon.)	Wilmington
*Hart, Deryl	Durham
Hart, Jno. E.	Wadesboro
*Hart, V. K.	Statesville
Hartsell, F. E.	Oakboro
Hartsell, J. A.	Concord
Hathcock, Thos. A.	Norwood
*Harvey, W. W.	Greensboro
Hatcher, M. A.	Hamlet
*Hayes, R. B.	Hillsboro
Hays, B. K. (Hon.)	Oxford
*Haywood, C. L., Jr.	Durham
*Haywood, Hubert B., Jr.	Raleigh
Hayworth, C. A.	Asheboro
Head, W. T., Campobello, S. C., Rt. 4	(Rutherford Co.)
Hedrick, C. R.	Lenoir
*Hege, J. Roy	Winston-Salem
Heighway, S. C.	Murphy
Heilig, Hermon G.	Asheville
*Helms, J. B.	Morganton
Helsabeck, C. J.	Walnut Cove
Helsabeck, R. S.	King
*Hemmingway, J. D.	Gastonia
Henderson, C. C.	Mount Olive
*Henderson, Jno. P.	Jacksonville
Henderson, R. B.	Franklinton
Henderson, S. McD.	Charlotte
*Henry, T. B.	Rockingham
Hensley, Chas. A.	Asheville
Herbert, Fred Lee	Andrews
*Herbert, Wm. P.	Asheville
*Herman, Chas. B.	Statesville
Hester, Jos. R.	Wendell
Hester, Wm.	Reidsville
*Hiatt, H. B.	High Point
Hickman, M. T.	Hudson
*Hicks, Calvin S.	Durham
Hicks, I. F.	Dunn
Hicks, Romeo (Hon.)	Henrietta
*Hicks, V. M., Oph.	Raleigh
Highsmith, Charles	Dunn
*Highsmith, J. D.	Fayetteville
*Highsmith, J. F. (Hon.)	Fayetteville
*Highsmith, Seavy	Faye'teville
Hill, J. N.	Murphy
*Hill, M. D.	Smithfield
*Hill, Wm. I.	Albemarle
Hinnant, Milford	Micro
Hipp, Edw. R.	Charlotte
Hipps, A. G. T.	Asheville
*Hocutt, Battle A.	Clayton
*Hodge, A. R.	Severn
Hodges, Joseph M.	Boone
*Hodgin, H. H.	Red Springs
*Hoggard, J. T.	Wilmington
Holden, E. C.	High Point
*Hollingsworth, E. T.	Goldsboro
*Holloway, Joseph C.	Durham
*Holloway, Robert Lee	West Durham
Hollyday, W. M., OALR	Asheville
*Holmes, A. B.	Fairmont
*Holt, D. W.	Greensboro
Holt, T. J.	Warrenton
*Holt, Wm. P.	Erwin
*Holt, Wm. P., Jr.	Erwin
Holt, Wm. T. (Hon.)	McLeansville
*Holton, Thos. J.	Charlotte
*Hood, J. Sidney	Gastonia
*Hooker, John S.	Sanatorium
*Hooks, Thel	Smithfield
Hooper, Jos. W.	Wilmington
*Hoover, C. H.	Crouse
Horton, M. C., OALR	Raleigh
Horton, W. C.	Raleigh
Houck, Albert F. (Hon.)	Lenoir
House, W. O.	Tarboro
Houser, E. A.	Shelby
Houser, O. J.	Charlotte
Hovis, L. W., OALR	Charlotte
Howard, C. E.	Sanatorium
Howard, J. R.	Concord
*Howell, W. L.	Ellerbe
Howser, Forest M.	Cherryville
Hoyle, Hughes B.	Manteo
Hubbard, Chas. C.	Farmer
*Hubbard, Fred C.	N. Wilkesboro
*Hudson, C. C.	Greensboro
Huffines, T. R.	Asheville
Hunt, J. F.	Spindale
Hunt, W. Bryce	Lexington
*Hunter, Frank P.	Warrenton
*Hunter, J. P.	Cary
Hunter, L. W. (Hon.)	Charlotte, Rt. 1
Hunter, M. C.	Huntersville
*Hunter, Myers	Charlotte
*Hunter, W. C.	Wilson

Name	*Address*
*Hunter, W. B.	Cramerton
*Hurdle, S. W.	Winston-Salem
*Huston, Jno. W.	Asheville
Hutchins, E. M.	North Wilkesboro
Hyatt, A. L.	Kinston
Hyde, Francis Edward	Beaufort
Hutchinson, S. S.	Bladenboro
Ingersoll, Louise M.	Asheville
Ingram, Chas. B. (Hon.)	Mt. Gilead
Irwin, Hamner C.	Pocatella, Idaho (Mecklenburg Co.)
Irwin, Henderson	Goldsboro
*Irwin, J. R. (Hon.)	Charlotte
*Ivey, H. B.	Goldsboro
*Ivey, R. R., U.S.P.H.S.	Biltmore
Izlar, H. L.	Winston-Salem
Jackson, C. C.	Pinetown
*Jackson, Walter Leo	High Point
Jacocks, W. P.	New York City (Lincoln Co.)
James, F. P.	Laurinburg
*James, W. D.	Hamlet
*Jarboe, Parran	Greensboro
Jarman, F. G.	Roanoke Rapids
Jenkins, Chas. L. (Hon.)	Raleigh
*Jennings, C. W., OALR	Greensboro
*Jennings, R. G.	Thomasville
Jervey, A. J.	Tryon
*Jett, Samuel G.	Reidsville
Jewett, R. D. (Hon.) OALR,	Wilmington
John, Peter	Laurinburg
Johnson, B. C.	Bunn
Johnson, C. T.	Red Springs
*Johnson, Floyd	Whiteville
*Johnson, Geo. W.	Wilmington
Johnson, Harry L.	Greensboro
Johnson, John B.	Old Fort
*Johnson, J. R.	Ramseur
*Johnson, N. M. (Hon.)	Durham
Johnson, Otis H.	Morehead City
Johnson, R. Lee	Gastonia
*Johnson, Thos. C.	Lumberton
Johnson, W. A.	Reidsville
Johnson, W. C.	Canton
*Johnson, Wingate M.	Winston-Salem
*Johnston, Christopher	Durham
Johnston, J. G., OALR	Charlotte
Johnston, W. W.	Manteo
*Jonas, John F.	Marion
Jones, A. G. (Hon.)	Walnut Cove
Jones, Beverly N., OALR,	Winston-Salem
Jones, Carey C.	Cary
Jones, D. C.	Charlotte
Jones, R. Duval	New Bern
Jones, Thomas J.	Lansing
Jones, T. Lester	Lansing
Jones, W. M.	Gastonia
Jones, W. S.	Nashville
*Jones, Wm. M.	Greensboro
Jordan, Chas. S. (Hon.)	Asheville
Jordan, T. M. (Hon.)	Raleigh
Jordan, Wm. S., OALR	Fayetteville
Judd, Eugene C.	Raleigh
*Judd, James M.	Varina
*Julian, Chas. A. (Hon.)	Greensboro
Jurney, Peter Claywell	Turnersburg
Justice, Gaston B.	Marion
Justice, Wm. S.	Asheville
*Kapp, Henry H.	Winston-Salem
Keever, Jas. W.	Hickory
*Keiger, Jas. A.	Greensboro
Keiger, O. R.	Winston-Salem
*Keith, Marion Y.	Greensboro
Kelleher, L. B.	Charlotte
Kelly, Luther W.	Charlotte
Kendall, B. H.	Shelby
Kende, Tibor Norbert,	Jersey City, N. J. (Burke Co.)
*Kendrick, R. L.	Elizabeth City
*Kennedy, John P.	Charlotte
*Kent, Alfred A. (Hon.)	Winter Park, Fla. (Caldwell Co.)
Kernodle, Chas. E.	Elon College
*Kerns, T. C., OALR	Durham
*Kerr, John D.	Clinton
*Kerr, Jas. E. (Hon.)	Winston-Salem
Ketchie, J. M.	Salisbury
Ketner, Fred Y.	Concord
Kibler, W. H.	Morganton
Killian, Frank M.	Nantahala (Macon-Clay)

Name	*Address*
Kimberly, David, Jr.	Hot Springs
King, Edward	Asheville
*King, E. S.	Wake Forest
*King, Parks M.	Charlotte
King, Richard M.	Concord
*Kinlaw, Wm. B.	Rocky Mount
Kinsman, Henry F.	Hamlet
Kirby, Guy S.	Marion
Kirby, W. L.	Winston-Salem
Kirkpatrick, W. L.	Waynesville
Kirksey, James J.	Morganton
Kirksey, W. A.	Hope Mills
*Kitchin, Thurman D.	Wake Forest
Kluttz, A. F.	Maiden
*Kluttz, DeWitt	Washington
*Knight, Floyd L.	Sanford
Knight, Wm. P. (Hon.)	Greensboro
Knowles, D. L.	Rocky Mount
Knox, A. W. (Hon.)	Raleigh
Koonce, S. Everett, OALR (Hon)	Wilmington
Kornegay, Lemuel W.	Rocky Mount
*Lackey, W. J.	Fallston
Lacy, Thos. A.	Raleigh
*Lafferty, Robt. H.	Charlotte
Lambert, C. F.	Spruce Pine
*Lambert, W. L.	Asheboro
Lamm, I. W.	Raleigh
Landen, J. F.	Chinquapin
Lane, Bessie	Raleigh
Lane, John L., OALR	Rocky Mount
Lane, P. P.	Wilson
Large, H. Lee	Rocky Mount
*Larkin, E. W.	Washington
Lassiter, H. G.	Weldon
Lassiter, V. C.	Winston-Salem
*Latham, Jos. R.	New Bern
Laton, Jas. F., OALR	Albemarle
Lattimore, E. B.	Shelby
*Lawrence, B. J.	Raleigh
Ledbetter, Jas. McQ., OALR,	Rockingham
*Lee, J. Marshall	Newton Grove
Lee, Lawrence V.	Lattimore
*Lee, Mike	Kinston
Lee, R. E.	Lincolnton
*Lee, Thomas L.	Kinston
Leeper, Donald H.	Hiddenite
*Leinbach, Robt. F.	Charlotte
*Lentz, C. M.	Albemarle
Leonard, J. C., Jr.	Lexington
Lewis, C. W.	Welch, W. Va. (Carteret)
Lewis, Geo. W. (Hon.)	Wilson
Lewis, H. W. (Hon.)	Jackson
*Lilly, Jas. M., OALR	Fayetteville
Lindberg, O. S.	Candler
Linville, A. Y. (Hon.)	Winston-Salem
Linville, W. C.	Goldsboro
Lister, E. W.	Elizabeth City
*Lister, J. L.	Mount Olive
Little, E. E.	Statesville
Little, Lonnie M.	Statesville
*Livingston, E. A., OALR	Gibson
Lloyd, B. B.	Carrboro
Locke, Eva M.	White Rock
*Lockett, Everett A.	Winston-Salem
Logan, F. W. H.	Rutherfordton
*London, A. F., Jr.	Durham
*Long, Benj. Leroy	Glen Alpine
*Long, E. F.	High Point
Long, Fred Y.	Catawba
Long, H. F. (Hon.)	Statesville
Long, R. H.	Morganton
*Long, T. W. M.	Roanoke Rapids
*Long, V. McK.	Winston-Salem
*Long, Z. F.	Rockingham
Looney, J. J. W.	Rocky Mount
Lord, Marjery J.	Montreat
Lott, Wm. G.	Asheville
*Love, Bedford E.	Roxboro
*Love, Wm. M.	Monroe
*Lovelace, Thos. C.	Henrietta
*Lovill, Robt. J.	Mount Airy
*Lowery, John R.	Salisbury
Lubchenko, N. E.	Harrisburg
Lutterloh, I. Hayden, Jr.	Sanford
*Lutterloh, I. H., Sr.	Sanford
Lyday, C. E.	Gastonia
*Lyday, R. O.	Greensboro
Lyle, S. H.	Franklin
Lynch, J. M.	Asheville
*Lyon, B. R.	Greensboro
Lyon, Henry Wise	Windsor

Name	*Address*
*MacConnell, John W., OALR,	Davidson
MacFadyen, Paul R.	Concord
*MacNider, Wm. deB.	Chapel Hill
MacRae, J. D., Jr.	Asheville
*McAdams, C. R.	Belmont
McAnally, Jas. McG.	High Point
*McAnally, Wm. J. (Hon.)	High Point
*McBane, T. W.	Pittsboro
*McBrayer, L. B. (Hon)	Southern Pines
McBrayer, R.	Watertown, N. Y. (Hoke Co.)
*McBryde, M. H.	Reidsville
*McCain, P. P.	Sanatorium
*McCain, Walkup K.	High Point
*McCain, Wm. R. (Hon.)	High Point
*McCall, A. C., OALR	Asheville
*McCampbell, John (Hon.)	Morganton
McCants, C. H.	Winston-Salem
*McClees, E. C.	Elm City
*McClelland, Joseph O.	Maxton
McConnell, H. R.	Gastonia
*McCoy, C. M.	Ahoskie
*McCoy, Thos. M.	Charlotte
McCotter, St. Elmo	Bayboro
McCracken, C. M.	Fairview
*McCracken, J. R., OALR,	Waynesville
McCuiston, A. M.	Kinston
McCutchan, Frank	Salisbury
*McCutcheon, W. B.	Durham
McDade, B. B.	Burlington
*McDaniel, L. E.	Jackson
*McDowell, F. C.	Zebulon
McDowell, R. H.	Belmont
McDuffie, W. N.	Hemp
*McElwee, Ross S.	Statesville
McFadden, R. H.	Charlotte
*McFayden, O. L.	Fayetteville
*McGeachy, R. S. (Hon.)	Greenville
*McGee, Jas. W. (Hon.)	Raleigh
McGee, J. M.	Greensboro
*McGehee, Jno. Wm.	Reidsville
McGowen, Claudius	Plymouth
McGregor, Geo. D.	Charlotte
*McGoogan, Benj. J.	Morven
McIntosh, D. M.	Old Fort
McIntosh, W. R.	Rockingham
*McIntyre, Stephen	Lumberton
*McIver, Lynn	Sanford
*McKay, Hamilton W.	Charlotte
*McKay, Jos. F. (Hon.)	Buies Creek
McKay, Robert W.	Charlotte
McKay, W. P.	Fayetteville
McKee, John S.	Raleigh
*McKenzie, B. W.	Salisbury
*McKnight, R. B.	Charlotte
McLaughlin, C. S.	Charlotte
McLaughlin, J. E. (Hon.)	Statesville
McLean, Allen	Morganton
McLean, E. K.	Charlotte
McLean, John W.	Godwin
McLean, Peter	Laurinburg
McLelland, W. D.	Mooresville
McLemore, Geo. A.	Smithfield
McLeod, A. H.	Aberdeen
McLeod, W. G.	Southern Pines
McLeskey, J. H.	Charlotte
McMillan, B. F. (Hon.)	Red Springs
McMillan, J. M.	Candor
McMillan, R. D.	Red Springs
McMillan, W. D. (Hon.)	Wilmington
*McNairy, Caroline	Lenoir
*McNeill, Jas. H.	North Wilkesboro
*McPhail, L. D.	Charlotte
*McPhaul, W. A.	Charlotte
*McPherson, C. W., OALR	Burlington
*McPherson, S. D., OALR	Durham
*Macon, G. H.	Warrenton
Maddigan, Maj. J. J.	Fort Bragg
Malloy, S. A.	Yanceyville
*Maness, A. K.	Greensboro
Mangum, C. P.	Kinston
*Mangum, C. S.	Durham
*Mann, I. Thurman	High Point
*Mann, Thos. A.	Durham
*Manning, I. H. (Hon.)	Chapel Hill
Manning, John M. (Hon.)	Durham
Mariner, N. B.	Belhaven
*Markham, Blackwell	Durham
Marr, M. W.	Pinehurst
Marsh, Frank B.	Salisbury
*Martin, J. A.	Lumberton
Martin, J. F.	Dunn
Martin, J. H.	Red Oaks
*Martin, J. W.	Roanoke Rapids

Name	*Address*
Martin, Lester P.	Mocksville
Martin, Moir S.	Mt. Airy
Martin, Sydnor L.	Leaksville
Martin, W. C., OALR	Mocksville
*Martin, Wm. F.	Charlotte
Martin, W. J.	Richmond, Va. (Mecklenburg)
Mason, C. N.	Harlowe
Mason, Manly	Newport
*Massey, C. C.	Smithfield
*Matheson, J. Gaddy	Ahoskie
Matheson, James P.	Charlotte
*Matthews, M. L.	Sanford
Mattheson, R. A.	Raeford
*Matthews, James O.	Clinton, R.F.D.
Matthews, Vann M.	Charlotte
Mathews, Wm. W.	Spray
*Maxwell, C. S.	Beaufort
Maxwell, J. F.	Pink Hill (Duplin County)
*Mayerberg, I. W.	Selma
*Meadows, W. J.	Greensboro
Mears, George A.	Asheville
Mebane, W. C.	Wilmington
*Melvin, W. C.	Linden
Menzies, H. C. (Hon.)	Hickory
Merritt, John H.	Woodsdale, R. 1
*Micheaux, Edward R. (Hon.)	Greensboro
Miles, May S.	Greensboro
*Milham, C. G.	Jamestown
Miller, J. F.	Marion
Miller, O. L.	Charlotte
Miller, R. C.	Gastonia
*Miller, Robert B.	Goldsboro
*Milliken, J. S.	Southern Pines
*Misenheimer, Thos. M.	Charlotte
Mitchel, G. T.	Jennings
Mitchell, Geo. W.	Wilson
Mitchell, Paul H.	Ahoskie
*Mitchell R. C.	Mt. Airy
Mitchell, W. F.	Shelby
*Mitchell, Z. P.	Weldon
Mitchener, J. S., OALR	Raleigh
*Mock, Frank L.	Lexington, R. 3
*Moncure, Wm., Jr.	Salisbury
Monk, Henry L.	Salisbury
*Monroe, C. R.	Pinehurst
*Montgomery, Harry M.	Burlington
Montgomery, Kenneth E.	Asheville
Moore, Alexander W.	Charlotte
*Moore, Chas. E. (Hon.)	Wilson
Moore, D. B.	Badin
*Moore, D. F.	Shelby
*Moore, Edwin G. (Hon.)	Elm City
*Moore, Henry B.	Graham
*Moore, Julian A.	Asheville
*Moore, J. E.	Mount Olive
*Moore, Oren	Charlotte
*Moore, R. A.	Charlotte
Moore, R. A.	Winston-Salem
Moore, T. V.	Acme
*Moore, W. Houston	Wilmington
Morgan, B. E.	Asheville
Morgan, G. A.	Asheville
Morrill, D. S.	Farmville
Morris, Geo. B.	Goldsboro
*Morris, Jos. A.	Oxford
Morton, J. X.	Faison
Moseley, Chas. W. (Hon.)	Greensboro
*Moseley, Z. V.	Kinston
*Moser, W. D.	Burlington
Moss, G. O.	Cliffside
Motley, Fred Elliott	Charlotte
Mudgett, W. C.	Southern Pines
Munroe, H. Stokes	Charlotte
*Munroe, J. P. (Hon.)	Charlotte
Munt, H. F.	Winston-Salem
Murchison, D. R.	Wilmington
*Murphy, Gibbons W.	Asheville
*Murphy, John G., OALR	Wilmington
*Murphy, W. B.	Snow Hill
*Murray, R. L.	Raeford
Myers, Alonzo	Charlotte
Myers, D. L.	Jennings
*Myers, John Q.	Charlotte
*Nalle, B. C.	Charlotte
*Nance, C. L.	Charlotte
*Nash, J. Fred	St. Paul
Neal, J. M.	Walnut Cove
Neal, Kemp P.	Raleigh
Neal, Paul N.	Raleigh
Neblett, H. C.	Charlotte
Neese, Kenneth E.	Greensboro
Nelson, R. J. (Hon.)	Robersonville
Nesbitt, Charles T.	Wilmington

Name	*Address*
Neville, H. C.	Scotland Neck
Newby, G. E.	Hertford
*Newell, H. A., OALR	Henderson
Newell, J. O.	Louisburg
Newell, Leone B.	Charlotte
*Newman, Harold H.	Salisbury
Newton, Howard L.	Charlotte
*Nichols, Austin F.	Roxboro
*Nichols, Rhodes E.	Durham, Rt. 8
*Nicholson, B. M.	Enfield
Nicholson, C. R.	Statesville
Nicholson, N. G.	Mt. Gilead
Nicholson, P. A. (Hon.)	Washington
Nisbet, D. Heath	Charlotte
*Nisbet, Walter O. (Hon.)	Charlotte
Noble, R. J. (Hon.)	Selma
*Noble, R. P.	Raleigh
Nobles, Jos. E.	Greenville
*Noblin, Roy L.	Oxford
Nolan, J. O.	Kannapolis
Norburn, C. S.	Asheville
Norburn, R. L.	Asheville
Norfleet, A. C.	Tarboro
Norfleet, E. P.	Roxobel
*Norman, J. S., OALR	Hickory
Norris, Henry	Bryn Mawr, Pa. (Rutherford Co.)
*Northington, J. M.	Charlotte
Nowlin, Preston	Charlotte
Oates, George	Grover
*O'Briant, A. L.	Sanford
Odell, J. W.	Dunn
*Ogburn, H. H.	Greensboro
Ogilvie, Hanson S.	Asheville
*Olive, P. W.	Fayetteville
*Oliver, A. S.	Raleigh
Ormand, J. W.	Monroe
*Orr, Chas. C.	Asheville
Orr, C. V.	Andrews
Orr, P. B.	Asheville
Orr, W. J. B.	Smithfield
*Owen, J. F.	Dix Hill, Raleigh
*Ownbey, Arthur D.	Greensboro
*Pace, K. B.	Greenville
Paddison, J. R.	Kernersville
*Page, B. W.	Trenton
Palmer, M. C.	Tryon
*Palmer, R. W.	Gulf
Parker, G. E. (Hon.)	Benson
Parker, Geo. F.	Asheville
*Parker, H. R.	Greensboro
*Parker, O. L.	Clinton
Parker, Paul G.	Erwin
Parks, Hugh	Elkin
Parks, W. B.	Gastonia
*Parrott, Jas. M. (Hon.) OALR,	Kinston
Parrott, M. C.	Kinston
Parrott, Wm. T. (Hon.)	Kinston
*Parsons, W. H.	Ellerbe
*Pate, J. F.	Canton
Pate, James Frederick, OALR,	Greensboro
*Pate, Jas. G.	Gibson
*Patman, W. L.	Greensboro
*Patrick, Geo. R., Jr.	Bessemer City
*Patrick, J. E.	Bahama
Patrick, L. N.	Gastonia
*Patterson, Fred M.	Greensboro
Patterson, Jos. F.	New Bern
*Patterson, Reid	Charlotte
Pearson, Raymond	Monroe
Peek, W. A.	Ramsaytown
*Peeler, Clarence N., OALR	Charlotte
Peeler, John H.	Salisbury
*Peery, Vance P.	Kinston
*Peete, C. H.	Warrenton
Pegram, R. W. S.	Canton (Wilkes Co.)
Pemberton, Wm. D. (Hon.)	Concord
Pendleton, Wilson	Asheville
*Pepper, Jno. Kerr	Winston-Salem
Perkins, Jno. R., OALR,	Winston-Salem
Perry, A. H.	Wood
*Perry, D. R.	Durham
Perry, E. M.	Rocky Mount
Perry, H. B.	Boone
*Perry, H. G.	Louisburg
Perry, Leora	Charlotte
Perry, Robt. E.	Greensboro
Person, Edgar C., OALR	Pikeville
Person, J. B., Jr. (Hon.)	Selma
Person, T. E.	Stantonsburg
Peters, W. A.	Elizabeth City

Name	*Address*
Peterson, C. A.	Spruce Pine
*Petrie, Robt. Wm., OALR	Lenoir
Petteway, Geo. H.	Charlotte
*Pfohl, Samuel F. (Hon.)	Winston-Salem
Phifer, Edward M.	Morganton
Phillips, C. C.	Charlotte
*Phillips, C. H.	Thomasville
Pickett, John A.	Burlington R. F. D. 1
Pittman, E. E.	Oak City
*Pittman, M. A.	Wilson
*Pittman, R. L.	Fayetteville
Plyler, R. J.	Salisbury
*Pollard, W. B.	Winton
Pollock, Raymond	New Bern
Pool, B. B.	Winston-Salem
Pope, Henry T. (Hon.)	Lumberton
Post, J. J.	Greensboro
Poston, J. Lewis	Statesville
*Powell, Albert H.	Durham
Powell, Jesse A.	Edenton
Powers, John B.	Wake Forest
Powers, J. F.	Norfolk, Va. (Avery)
Pressly, Geo. W. (Hon.)	Charlotte
Pressly, J. L.	Statesville
*Pressly, J. M.	Belmont
Price, H. L.	Taylorsville
Price, K. A.	Hickory
Pritchard, G. L.	Black Mountain
*Procter, I. M.	Raleigh
*Pugh, Chas. H.	Gastonia
Pulliam, B. E.	Elkin
*Purdy, J. J.	Oriental
*Putney, R. H.	Elm City
*Query, Richard Z.	Charlotte
Quickel, Thos. C., OALR	Gastonia
*Quinn, Robert F.	Magnolia
*Rainey, W. T.	Fayetteville
Ramseur, W. L.	Kings Mountain
Ramsey, James G.	Cleveland, O. (Rowan Co.)
*Raby, J. G.	Tarboro
Rand, C. H.	Fremont
Rand, E. G.	Raleigh
Rankin, P. R.	Mount Gilead
*Rankin, S. W.	Winston-Salem
*Rankin, Watson S. (Hon.)	Charlotte
*Ranson, J. Lester	Charlotte
*Ravenel, S. F.	Greensboro
Ray, F. L.	Charlotte
*Ray, John B.	Leaksville
*Ray, O. L.	Raleigh, Rt. 1
Ray, R. C.	Beaver Creek
Ray, S. P.	Leaksville
*Reaves, C. R., OALR	Greensboro
Reaves, H. G.	Buena Vista, Va. (Guilford Co.)
Reaves, W. P., OALR	Greensboro
Redding, Alex H. (Hon.)	Cedar Falls
*Redfern, T. C.	Winston-Salem
Reed, D. H.	Maxton
Reed, John F.	Concord
Reeves, A. F.	Asheville
*Reeves, J. L.	Canton
Reeves, Robert J.	Durham
Reeves, R. J.	Leicester
*Register, F. M.	Goldsboro
Reid, Geo. P.	Forest City
Reid, James W.	Lowell
Reid, Thomas N.	Matthews
*Reitzel, C. E. (Hon.)	High Point
*Reynolds, C. V. (Hon.)	Asheville
Rhodes, James S.	Williamston
*Rhudy, Booker E.	Greensboro
*Rhyne, Robt. E.	Gastonia
Rhyne, S. A.	Statesville
Rich, J. C.	Candler
Richardson, F. H.	Black Mountain
*Richardson, W. P.	Lenoir
Riddle, J. B.	Morganton
*Ringer, Paul H.	Asheville
Roberson, Charles (Hon.)	Greensboro
*Roberson, Foy	Durham
Roberts, Bryan N.	Hillsboro
Roberts, B. W.	Durham
*Roberts, W. N.	Gastonia
*Robertson, E. M.	Durham
*Robertson, James F.	Wilmington
Robertson, J. N.	Fayetteville
Robertson, L. H.	Salisbury
Robinson, D. E.	Burlington
Robinson, E. E.	Concord
*Robinson, J. D.	Wallace
Robinson, W. A.	Old Fort

Name	*Address*
Robinson, W. F.	Mars Hill
Robinson, W. J.	Creston
*Rodgers, W. D., Jr.	Warrenton
Rodman, J. C. (Hon.)	Washington
Rodman, R. B.	Wilmington
Rodwell, Jno. W. (Hon.)	Mocksville
Rogers, Jas. Rufus	Raleigh
Rogers, W. A. (Hon.)	Franklin
*Root, Aldert S.	Raleigh
Rose, A. H.	Smithfield
*Ross, Geo. H.	East Durham
*Ross, Otho B.	Charlotte
*Ross, Robert A.	Durham
Ross, Thos. W.	Charlotte
Rosser, R. G.	Vass
Rourk, M. H.	Wilmington
*Rousseau, J. P.	Winston-Salem
*Royal, Ben F.	Morehead City
*Royal, D. M.	Salemburg
*Royster, Hubert A. (Hon.)	Raleigh
Royster, S. S.	Shelby
Royster, Thomas H.	Roanoke Rapids
Royster, Thos. S.	Henderson
*Rucker, A. A.	Rutherfordton
Rudisill, J. D.	Lenoir
Ruffin, J. M.	Durham
Russell, C. R.	Granite Falls
Russell, Jesse M.	Canton
Russell, Lloyd P.	Fletcher
Sabiston, Frank, OALR	Kinston
Sadler, R. C.	Whiteville
Saliba, John	Elizabeth City
*Saliba, M. M., OALR	Wilson
Salley, E. McQueen	Saluda
Salmons, H. C.	Elkin
Salmons, L. R.	Winston-Salem
Sample, R. C.	Hendersonville
Sams, W. A.	Marshall
*Sasser, T. J.	Charlotte
Saunders, John Rudolph	Morganton
Saunders, Jos. H.	Williamston
Saunders, S. A.	Windsor
*Saunders, S. Stewart	High Point
Sawyer, Chas. J. (Hon.) OALR,	Windsor
*Sawyer, W. W.	Elizabeth City
Schaffle, Karl	Asheville
Schallert, P. O.	Winston-Salem
Schenk, Sam M.	Shelby
Schoenheit, E. W.	Asheville
Schonwald, J. T. (Hon.)	Wilmington
Schoonover, R. A.	Greensboro
*Schuler, J. E.	East Durham
*Scott, Charles L.	Sanford
Scott, R. C.	Asheville
Scott, S. F.	Union Ridge
Scruggs, W. Marvin	Charlotte
*Seay, T. W.	East Spencer
*Sessoms, E. T.	Roseboro
Sevier, D. E. (Hon.)	Asheville
Sevier, J. T. (Hon.)	Asheville
*Sewell, Marion H.	Jackson
Sexton, C. H.	Dunn
*Shafer, Irving E.	Salisbury
Shamburger, J. B. (Hon.)	Star
*Shands, Alfred Rives, Jr.	Durham
Sharpe, C. R.	Lexington
*Sharpe, F. A.	Greensboro
Sharpe, Frank L.	Statesville
*Sharp, O. L.	Greensboro
*Shaver, W. T.	Albemarle
*Shaw, L. R.	Statesville
Shaw, W. G.	Wagram
Shelburne, P. A.	Greensboro
*Sherrell, C. L.	Statesville
Sherrill, H. R.	Lawndale
Shields, Henry B. (Hon.)	Carthage
Shirley, H. C., OALR	Charlotte
Shohan, Jos.	Greensboro
*Shore, Clarence A.	Raleigh
Shuford, Jacob H.	Hickory
Shull, J. Rush	Charlotte
*Sidbury, J. B.	Wilmington
*Sigman, F. G.	Spencer
Sikes, G. L.	Salemburg
Sikes, G. T. (Hon.)	Youngsville
*Simmons, L. L., OALR	Greensboro
Simmons, R. R.	Winston-Salem
*Simpson, H. H.	Elon College
Singletary, G. C.	Clarkton
Sink, C. S.	N. Wilkesboro
*Sisk, C. N.	Rockingham
*Skinner, Louis C.	Greenville
*Slate, John S.	Winston-Salem
Slate, J. W.	High Point
Slate, Wesley C.	Spencer
Sloan, A. B.	Mooresville

Name	*Address*
*Sloan, D. B., OALR	Wilmingon
Sloan, H. L., Oph	Charlotte
Sloan, Wm. H.	Garland
*Slocum, R. B.	Wilmington
Sloop, Eustace H.	Crossnore
Small, Victor R.	Clinton
Smith, A. Jones	Black Creek
Smith, Alick T.	Greensboro
*Smith, Annie T.	Durham
Smith, B. R.	Asheville
Smith, C. T.	Rocky Mount
*Smith, D. L.	Saluda
Smith, D. T.	Durham
*Smith, F. C., OALR	Charlotte
Smith, F. G.	Southport
*Smith, F. L.	Burlington
Smith, G. M.	Monroe
Smith, Harold Benj.	North Wilkesboro
Smith, J. A.	Lexington
Smith, Jos. E.	Windsor
Smith, Joseph	Greenville
Smith, L. J.	Wilson
*Smith, O. F.	Scotland Neck
Smith, R. A. (Hon.)	Goldsboro
Smith, R. C.	Grifton
*Smith, R. E.	Mt. Airy
*Smith, Sidney	Raleigh
Smith, Slade A.	Wilmington
Smith, W. F.	Chadbourn
Smith, W. G.	Wendell
*Smith, William Gordon	Thomasville
*Smith, Wm. H.	Goldsboro
Smithwick, Jas. E.	Jamesville
*Soady, J. H.	Garner
Somers, L. P.	New Castle
*Sossoman, J. C.	Midland
*Sowers, Roy G.	Jonesboro
*Sowers, Jacob L.	Lexington
Spainhour, Ellis H. (Hon.)	Winston-Salem
*Sparrow, Thos. DeL.	Charlotte
Speas, D. C.	Winston-Salem
Speas, W. P., OALR	Hickory
*Speed, J. A.	Durham
Speight, J. A.	Rocky Mount
Spencer, Frederick B.	Salisbury
Spencer, Wm. O. (Hon.)	Winston-Salem
Spicer, Richard W.	Winston-Salem
Spicer, William	Goldsboro
*Spikes, N. O.	Durham
Spoon, A. O.	Greensboro
Spoon, S. C.	Graham
Sprinkle, C. N.	Weaverville
*Spruill, Jos. L.	Jamestown
*Sprunt, W. H., Jr.	Winston-Salem
Squires, Claude B.	Charlotte
Staley, S. Walter	Rocky Mount
Stamps, Thos. (Hon.)	Lumber Bridge
Stanford, Lois Foote	Durham
*Stanford, W. R.	Durham
Stanley, John H.	Four Oaks
*Stanton, D. A. (Hon.)	High Point
Staton, L. R.	Hendersonville
*Stanton, T. M.	Greensboro
Starr, H. F.	Greensboro
Steel, Wm. C.	Mount Olive
*Stevens, M. L. (Hon.)	Asheville
Stevens, R. S.	Princeton
Stevens, W. L.	Shiloh
*Stewart, H. D. (Hon.)	Monroe
Stirewalt, N. S.	High Point
Stokes, Jas. E. (Hon.)	Salisbury
Stone, G. E.	King
Stone, M. L.	Rocky Mount
Stoner, I. J.	West Durham
Straughan, J. W.	Warsaw
*Street, C. A.	Winston-Salem
*Street, M. E. (Hon.)	Glendon
Stretcher, R. H.	Waynesville
Strickland, E. F. (Hon.)	Winston-Salem
Strickland, E. L.	Wilson
Strickland, W. M.	Wendell
*Stringfield, Samuel L.	Waynesville
Stringfield, Thos. (Hon.)	Waynesville
Strong, Chas. M. (Hon.)	Charlotte
Strong, Wm. M.	Charlotte
*Strosnider, Chas. F.	Goldsboro
*Strowd, W. A.	Durham
Suggett, O. L.	Asheville
*Suiter, W. G.	Weldon
Sullivan, Claude H.	Charlotte
Summerell, E. M. (Hon.)	China Grove
*Sumner, E. A.	High Point
*Sumner, G. H.	Asheboro
Sumner, Thos. W.	Fletcher
Surles, J. B.	Four Oaks

Name	*Address*
Sutton, Wm. G.	Seven Springs
Swann, C. C.	Asheville
Swann, Jos. F.	Gastonia
*Sweaney, H. M.	Durham
Swindell, C. L.	Wilson
*Swindell, Lewis H.	Washington
Sykes, J. V.	Rocky Mount
*Symington, John	Carthage
Talley, J. S.	Troutman
*Tankersley, J. W.	Greensboro
*Tate, C. S.	Ramseur
Tate, W. C.	Banner Elk
*Tatum, Roy C.	Statesville
Tatum, Walter Lowe	Salisbury
Tayloe, D. T. (Hon.)	Washington
*Tayloe, D. T., Jr.	Washington
*Tayloe, John Cotton	Washington
Tayloe, Joshua. Jr.	Washington
Taylor, E. H. E.	Morganton
*Taylor, F. R.	High Point
Taylor, G. W.	Mooresville
*Taylor, H. A.	Raleigh
Taylor, H. C.	Charlotte (Chadwick Station)
*Taylor, J. E.	Morganton
Taylor, James N.	Greensboro
*Taylor, James T.	Greensboro
*Taylor, R. W.	Oxford
*Taylor, S. R., OALR	Greensboro
Taylor, T. G.	Leaksville
Taylor, Wesley	Greensboro
*Taylor, Wm. L.	Oxford
Taylor, W. I.	Burgaw
Teague, S. E.	Hamlet
Templeton, James McP.	Cary
Templeton, J. Y.	Mooresville
Tennent, G. S. (Hon.) OALR,	Asheville
Terry, Geo. H. B.	Oteen
*Terry, J. R.	Lexington
Terry, Wm. Calvin	Hamlet
*Thaxton, B. A.	Roxboro
Thigpen, H. G.	Scotland Neck
*Thomas, C. D.	Sanatorium
Thomas, J. E.	Waxhaw
*Thomas, J. G.	Greensboro
*Thomas, W. N.	Oxford
Thompson, A. C.	Asheville
Thompson, A. F., OALR	Troy
*Thompson, C. D.	High Point
*Thompson, Edg. S.	Winston-Salem
Thompson, Hugh A.	Raleigh
*Thompson, J. M.	Mebane
*Thompson, Joseph W.	Creedmoor
*Thompson, S. R.	Charlotte
Thompson, S. W., Jr.	Morehead City
*Thornton, W. F.	Sanatorium
Thorp, A. T.	Rocky Mount
Thurston, Asa	Taylorsville
*Tice, W. T.	High Point
Tidwell, L. E.	Andrews
Timberlake, C. V.	Youngsville
Timberlake, Richard E.	Youngsville
Todd, L. C.	Charlotte
Townsend, M. L.	Washington, D. C. (Mecklenburg Co.)
Toy, Calvert R.	Milltown, N. J. (Durham-Orange)
Triplett, W. R.	Purlear
Trivette, W. A.	Hamptonville
*Troxler, R. M.	Burlington
*Tucker, Jno. H.	Charlotte
Turner, J. P.	Greensboro
Tuttle, A. F.	Spray
*Tuttle, Reuben G.	Winston-Salem
*Twitty, John C.	Rutherfordton
Tydeman, F. W. L.	St. Louis, Mo. Care of Roxana Petrole Corp. (Mecklenburg Co.)
*Tyler, E. R.	Durham
Tyndall, R. G.	Kinston
*Tyner, Carl V.	Leaksville
*Tyson, J. J.	Ayden
*Tyson, T. D.	Mebane
*Underwood, O. E.	Roseboro
*Upchurch, Robt. T.	Henderson
*Utley, H. H.	Benson
*Valk, A. deT.	Winston-Salem
*Vann, H. M.	Wake Forest
Vann, J. R., Jr.	Spring Hope
Van Epp, Owen B.	Cashiers
*Van Poole, C. M. (Hon.)	Salisbury
Vaughn, J. C.	Rich Square
*Verdery, W. C.	Fayetteville
Verner, Carl Hugh	Forest City

Name	*Address*
*Vernon, Jas. W.	Morganton
*Vestal, Willis J. (Hon.)	Lexington
Vick, George D.	Selma
Waddell, Robt. L.	Mooresville
*Wadsworth, H. B.	New Bern
Wakefield, Harry A., OALR,	Charlotte
*Walker, H. D. (Hon.)	Elizabeth City
*Walker, J. B.	Burlington
Walker, L. K.	Ahoskie
Wall, R. L.	Winston-Salem
*Walters, Chas. M.	Burlington
*Wannamaker, Edw. J., Jr.	Charlotte
Wanstrom, Ruth	Asheville
Ward, Jesse E.	Robersonville
Ward, I. A.	Elizabeth City
*Ward, John LaB.	Asheville
Ward, Vernon A.	Robersonville
*Ward W. T.	Raleigh
*Warren, R. F.	Prospect Hill
Warrick, L. A.	Goldsboro
Watkins, F. B.	Morganton
Watkins, Geo. S.	Oxford
*Watkins, G. T.	Durham
*Watkins, John A.	Asheville
*Watkins, W. M.	Durham
Watson, John B.	Raleigh
Watson, Leon	Broadway
Watson, Paul S.	Oakboro
*Watson, Thos. M.	Greenville
*Weathers, Bahnson	Rosemary
*Weathers, R. R.	Knightdale
Weaver, Henry B. (Hon.)	Asheville
Weaver, W. J.	Rt. 4, Asheville
Webb, B. G.	Andrews
*Webb, W. P.	Rockingham
Weddington, J. L.	Henderson
Weizenblatt, Sprinza	Asheville
*Wessell, John C.	Wilmington
West, B. C.	Kinston
West, C. F.	Kinston
*West, Louis N., OALR	Raleigh
West, Robert M.	Salisbury
*Wharton, Chas. R.	Ruffin
Wharton, L. D. (Hon.)	Smithfield
*Wheeler, J. H.	Henderson
Whelpley, Frank L.	Goldsboro
Whichard, M. P.	Edenton
Whicker, Guy L.	Kannapolis
*Whisnant, Albert M. (Hon.)	Charlotte
Whitaker, Paul F.	Kinston
Whitaker, R. B.	Whiteville
White, E.	Harrelsville
White, John W. (Hon.)	Wilkesboro
White, R. A.	Asheville
*White, Thos. P.	Charlotte
White, W. H. C.	Elizabeth City
White, W. M.	Lenoir
Whitehead, Edward	Salisbury
Whitehead, S. L.	Asheville
Whitfield, Wm. Cobb (Hon.)	Grifton
Whitley, Ayer	Matthews
*Whittington, Claude	Greensboro
Whittington, Jas. B.	Winston-Salem
*Whittington, W. W., (Hon.)	Snow Hill
Wiggins, J. C.	Winston-Salem
Wilcox, J. W.	Rutland, Mass.
*Wilkerson, Charles B.	Raleigh
*Wilkerson, Charles E.	Greensboro
Wilkerson, J. B.	Rosman
Wilkes, Grover C.	Sylva
*Wilkes, Marcus B.	Laurel Hill
*Wilkins, J. C.	Haw River
Wilkins, J. W., OALR	Mt. Olive
*Wilkins, R. B., OALR	Raleigh
*Wilkinson, C. T.	Wake Forest
Wilkinson, R. W.	Wake Forest
*Williams, Claude B.	Elizabeth City
*Williams, James Marcus	Warsaw
*Williams, J. H.	Sanatorium
Williams, John D. (Hon.)	Guilford Station
Williams, L. L.	Asheville
*Williams, L. P.	Edenton
*Williams, Lester L.	Fayetteville
Williams, T. G.	Conetoe
Willis, A. P.	Candler
Willis, B. C.	Rocky Mount
Wilson, Albert R. (Hon.)	Greensboro
Wilson, Clarence L.	Lenoir
Wilson, N. G.	Madison
Wilson, Robert B.	Clinton
*Wilson, W. G.	Smithfield
Wingate, G. C.	Charlotte
*Winstead, E. G.	Belhaven
Winstead, J. A.	Nashville

Name	*Address*
*Winstead, J. L.	Greenville
*Winston, P. H.	Raleigh
*Wiseman, P. H.	Avondale
Wishart, Wm. E.	Charlotte
Withers, J. J.	Davidson
Wolfe, H. C., OALR	Greensboro
*Wolff, D. R.	Greensboro
Woodard, A. G., OALR	Goldsboro
*Woodard, C. A.	Wilson
Woodard, G. B.	Wilson
*Woodcock, John H.	Hendersonville
Woodruff, Fred G.	High Point
Woodruff, Julian S.	Charlotte
Woodson, Charles W.	Salisbury
Woodward, J. G.	Asheville
Wooten, Amos Monroe	Pinetops
*Wooten, W. I.	Greenville
Wooten, Floyd P.	Kinston
*Wright, J. B. (Hon.) OALR	Raleigh
Wright, O. E.	Winston-Salem
*Wyatt, A. T.	Lillington
Wyatt, Wortham	Winston-Salem
Wylie, W. DeK.	Winston-Salem
*Yarborough, Frank R.	Cary
*Yarborough, R. F. (Hon.)	Louisburg
*Yoder, Paul A.	Winston-Salem
*Yokeley, Raymond V.	Thomasville
*York, Alexander Arthur	High Point
Young, G. McD.	Postell
Younge, J. G.	Asheville
Yow, I. A.	Concord
*Zimmerman, Robert U.	Lexington

ROSTER OF FELLOWS FOR 1931

BY COUNTIES

NOTE.—Every physician in the state whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license and date State Society was joined. A few did not take advantage of the opportunity. Anyone finding an error should report it to the secretary of the society.

ALAMANCE-CASWELL COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President:		
Secretary: Willard Coe Goley, Graham; Univ. of Pa., 1924	1924	1924
Anderson, Chas. A., (Hon.) Burlington; Coll. P. and S., Balt., 1901	1893	1896
Bell, F. O., Burlington		
Braddy, Wade Hampton, Burlington; Univ. of N. C., 1909	1909	1913
Brooks, R. E., Burlington; Jeff. Med. Coll., 1920	1920	1922
Carlyle, J. B., Burlington; Jeff. Med. Coll., 1926	1926	1928
Carrington, G. L., Burlington; Johns Hopkins, 1920	1920	1925
Ellington, A. J., Burlington; Columbia Univ., 1915	1915	1917
Goley, Wm. R., Graham (Hon.); P. and S., Balt., 1885	1885	1893
Gwyn, H. L., Yanceyville; Med. Coll. Va., 1923	1923	1925
Harden, Boyd, Burlington; Univ. Pa., 1928	1931	1931
Harden, Graham, Burlington; Univ. of Pa., 1919	1920	1922
Kernodle, Chas. E., Elon College; Univ. of Md., 1911	1911	1920
McDade, B. B., Burlington; Univ. of Md.	1918	1920
McPherson, C. W., Burlington; Univ. of Md., 1910	1910	1912
Malloy, S. A., Yanceyville; Ky. School Med., 1897	1898	1903
Montgomery, Harry M., Burlington; N. C. Med. Coll., 1903	1903	1904
Moore, Henry Blanchard, Graham; Jeff. Med. Coll., 1920	1920	1923
Moser, W. D., Burlington; Univ. of N. C., 1910	1910	1910
Pickett, J. A., Burlington, R.F.D. 1; Univ. of Tenn. Coll. of Med., 1894	1894	1904
Robinson, D. E., Burlington; Harvard Med. Coll., 1927	1929	1930
Scott, S. F., Union Ridge; Univ. of Pa., 1918	1918	1920
Simpson, H. H., Altamahaw; Univ. of Md., 1925	1925	1926
Smith, F. L., Burlington; Univ. of Pittsburgh, 1927	1927	1928
Spoon, S. C., Burlington; Univ. of Md., 1918	1918	1920
Thompson, J. M., Mebane; Univ. of N. C., 1909	1909	1920
Troxler, R. M., Burlington; Univ. of Md., 1914	1914	1915
Tyson, T. D., Mebane; Univ. Coll. of Med., Richmond, 1899	1899	1904
Walker, J. B., Burlington; Med. Coll. Va., 1914	1914	1916
Walters, C. M., Burlington; Univ. of Md. and P. and S., Balt., 1908	1908	1909
Warren, R. F., Prospect Hill; Atlanta School of Med., 1911	1911	1919
Wilkins, J. C., Haw River; Univ. of Md., 1911	1911	1920

ANSON COUNTY

President:		
Secretary:		
Allen, Chas. I., Wadesboro; Columbia Univ. Coll. P. and S., 1913	1913	1922
Bennett, Jos. H., Wadesboro; Univ. of Md., 1894	1894	1904
Covington, Platt W., 1479 Harrison Ave., Salt Lake City, Utah; Univ. of Md., 1908	1908	1914
Davis, J. M., Wadesboro; Columbia Univ., 1913	1913	1920
Hart, Jno. E., Wadesboro; P. and S., Balt., 1897	1897	1904
McGoogan, Benj. J., Morven; Univ. of Md., 1912	1912	1923

ASHE COUNTY MEDICAL SOCIETY

President and Secretary: Thos. J. Jones, Lansing; Lincoln Mem. Univ., 1895	1889*	1885
Jones, T. Lester, Lansing; Va. Med. Coll., 1909	1909	1917
Ray, R. C., West Jefferson; Med. Coll. of Va., 1916	1916	1917
Robinson, W. J., Creston; Univ. Med. Coll. of Kansas City, 1904	1907	1917

AVERY COUNTY SOCIETY

President: W. B. Burleson, Plumtree; Univ. Md., 1915	1915	1916
Secretary: R. H. Hardin, Banner Elk; N. C. Med. Coll., 1914	1914	1919
Powers, J. F., Norfolk, Va.; Med. Coll. Va., 1925	1925	1927
Sloop, Eustace H., Crossnore; N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908	1905	1909
Tate, W. C., Banner Elk; Tenn. Med. Coll., 1908	1909	1912

BEAUFORT COUNTY SOCIETY

President: E. W. Larkin, Washington; N. C. Med. Coll., 1917	1920	1922
Secretary: John Cotton Tayloe, Washington; Univ. of Pa., 1922	1924	1925
Bonner, J. B., Aurora; Univ. of Md. School of Med. and Coll. P. and S., 1918	1918	1920
Britt, T. C., Washington; Jeff. Med. Coll., 1921	1921	1925
Carter, H. W., Washington; Univ. of Va., 1895	1895	1910
Jackson, C. C., Pinetown; P. and S., Balt., 1893	1893	1896
Kluttz, DeWitt, Washington; Univ. of Pa., 1918	1919	1921
Mariner, N. B., Belhaven; Univ. Coll. of Med. Va., 1903	1903	1903
Nicholson, P. A., Washington (Hon.); P. and S., Balt., 1889	1889	1890
Rodman, J. C., Washington (Hon.); Bellevue Med. Coll., 1892	1892	1895
Swindell, Lewis H., Washington; Univ. of Pa., 1916	1916	1919
Tayloe, D. T., Washington (Hon.); Bellevue Med. Coll., 1885	1885	1885
Tayloe, D. T., Jr., Washington; Univ. of Pa., 1919	1919	1922
Tayloe, Joshua, Jr., Washington; Univ. of Pa., 1923	1923	1926
Winstead, E. G., Belhaven; Med. Coll. Va., 1929	1929	1930

BERTIE COUNTY SOCIETY

President: Frank H. Garris, Lewiston; Jeff. Med. Coll., 1912	1912	1918
Secretary: S. A. Saunders, Windsor		
Benthall, R. F., Aulander; Med. Coll. of Va., 1917	1917	1920
Castelloe, Cola, Windsor; Univ. of Pa., 1917	1917	1926

Evans, L. B., Windsor; Univ. Coll. of Med., 1900	1900	1907
Lyon, Henry Wise, Windsor; Univ. of Pa. Sch. of Med., 1918	1919	1920
Norfleet, E. P., Roxobel; Va. Med. Coll., 1914	1914	1920
Sawyer, Charles Judson, Windsor (Hon.); P. and S., Balt., 1895	1895	1897
Smith, Jos. Elmer, Windsor; Med. Coll. of Va., 1921	1921	1922

BLADEN COUNTY SOCIETY

President: S. S. Hutchinson, Bladenboro; N. C. Med. Coll., 1911	1911	1917
Secretary: E. S. Clark, Clarkton; Med. Coll. of Va., 1914	1914	1915
Bennett, E. C., Elizabethtown; Med. Coll. of Va., 1926	1926	1927
Bridger, D. H., Bladenboro; Jeff. Med. Coll.	1922	1925
Bullard, G. F., Elizabethtown; N. C. Med. Coll., 1915	1915	1916
Clark, D. D., Clarkton; Med. Coll. of Va., 1917	1917	1920
Cromartie, R. S., Elizabethtown; N. C. Med. Coll., 1900	1900	1915
Singletary, G. C., Clarkton; Univ. of Pa. School of Med., 1917	1917	1918

BRUNSWICK COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Goley, Wm. R., Shallotte; Univ. Coll. of Med., Richmond, 1901	1901	1904
Smith, F. G., Southport; Univ. Coll. of Med., Richmond, 1901	1901	1904

BUNCOMBE COUNTY SOCIETY

President: John LaB. Ward, Asheville; Med. Coll. of S. C., 1905	1921	1922
Secretary: M. S. Broun, Asheville; Columbia University Coll. of P. S., 1919	1922	1923
Adams, J. L., Asheville; Jeff. Med. Coll., 1910	1910	1913
Alexander, Geo., Asheville; Univ. of Louisville Med. Dept., 1913	1920	1921
Ambler, Chase P., Asheville (Hon.); West. Reserve Univ. School of Med., 1889	1890	1891
Archer, Isaac J., Black Mountain; Northwestern Univ. Med. School, 1896	1905	1907
Baier, Geo. F., Jr., W. Asheville; Halnemann Med. Coll., 1906	1920	1930
Baker, W. E., Arden; Chattanooga Med. Coll., 1908	1915	1916
Battle, Geo. C., Asheville; Univ. of Md., 1912	1912	1912
Beall, L. G., Black Mountain; N. C. Med. Coll., 1906; Univ. of Pa., 1911	1906	1912
Beers, David L., Asheville; Univ. of Mich., 1925	1928	1929
Blumberg, Alfred, Oteen; Sch. Med. Univ. Colo., 1923	1928	1929
Bown, Herbert H., Asheville; Columbus Med. Coll., 1892	1917	1918
Brewton, W. A., Enka; Univ. of Pa., 1927	1927	1929
Brookshire, Harley G., Asheville; N. C. Med. Coll., 1905	1905	1907
Brown, Kermit E., Asheville; Jeff. Med., 1927	1927	1930
Brownsberger, John F., Asheville; Coll. of Med., Evan. Los Angeles, 1925	1928	1929
Brownson, Wm. C., Asheville (Hon.); Univ. of N. Y., 1878	1881	1885
Buck, David M., Asheville; Med. Coll. of Va., 1925	1925	1927
Buckner, J. M., Swannanoa; Univ. N. C., 1909	1909	1912
Carr, Eugene M., Asheville; Johns Hopkins Univ., 1919	1926	1927

Cheesborough, Thomas P., Biltmore (Hon.); Univ. of N. Y., 1891	1891	1900
Clark, Harold S., Asheville; Univ. of Pa., 1922	1922	1924
Cocke, C. H., Asheville; Cornell Univ., 1905	1912	1913
Cocke, E. R., Asheville; Jeff. Med. Coll., 1913	1914	1917
Cocke, Jere E., Asheville; Louisville Med. Coll., 1905	1905	1907
Colby, C. DeW., Asheville; Univ. of Mich., 1892; Army Med. School, 1895	1909	1912
Cotten, Clyde E., Asheville (Hon.); Univ. of Wooster, 1889	1901	1901
Craddock, Alva B., Asheville; Johns Hopkins, 1918	1923	1924
Croom, G. H., Asheville, Box 1233; N. C. Med. Coll., 1909	1909	1916
Crow, S. L., Asheville; Emory Univ., 1925	1926	1927
Deyton, John W., Asheville; Rush Med. Coll., 1928	.....	1931
Eckel, O. F., Asheville; Med. Coll. of S. C., 1906	1907	1909
Edwards, B. O., Asheville; N. C. Medical Coll., 1905	1905	1909
Edwards, C. P., Asheville; Tenn. Med. Coll., 1900	1903	1921
Elias, Lewis W., Asheville; Columbia Univ. Coll. of P. and S., 1903	1906	1907
Fay, Scott S., W. Asheville; Univ. of Texas, 1915	1930	1931
Floyd, H. T., Oteen; Johns Hopkins Univ., 1923	1926	1927
Fox, Robert Eugene, Asheville; Univ. of Pa.	1926	1929
Freeman, Wm. T., Biltmore; Univ. of Ga., 1917	1927	1929
George, John C., Oteen, Miami Med., 1906	1925	1927
Godwin, G. C., Oteen; Med. Coll. Va., 1915	1915	1920
Grantham, Wm. L., Asheville; N. C. Med. Coll., 1906	1906	1911
Greene, Jos. B., Asheville; Univ. of Va., 1893	1910	1911
Greenwood, A. B., Asheville; Johns Hopkins, 1916	1916	1918
Griffin, M. A., Asheville; Jeff. Med. Coll., 1917	1917	1918
Griffin, W. R., Asheville; Jeff. Med. Coll., 1910	1910	1917
Griffith, F. W., Asheville; Johns Hopkins, 1906	1911	1912
Griffith, L. M., Asheville; Johns Hopkins, 1915	1916	1917
Harrison, H. H., Asheville; Jeff. Med. Coll., 1905	1905	1918
Heilig, Hermon G., Asheville; Univ. Md., 1899	1899	1931
Hensley, Chas. A., Asheville; Jeff. Med. Coll., 1917	1917	1927
Herbert, Wm. P., Asheville; Univ. of Va., 1907	1910	1911
Hipps, A. G. T., Asheville; Jeff. Med. Coll., 1916	1916	1920
Hollyday, W. M., Asheville; Univ. of Maryland, 1908	1914	1915
Huffines, T. R., Asheville; Indiana Univ. Med. School, 1919	1922	1923
Huston, Jno. Walter, Asheville; Rush Med. Coll., 1904	1912	1913
Ingersoll, Louise M., Asheville; Woman's Med. Coll., 1914	1925	1927
Ivey, R. R., U. S. P. H. S., Biltmore; Univ. of Ala., 1909	1921	1921
Jordan, Charles S., Asheville (Hon.); Univ. of N. Y., 1890	1891	1899
Justice, Wm. S., Asheville; Harvard Univ., 1926	1930	1931
King, Edward, Asheville; Harvard, 1917	1921	1922
Lord, Marjery J., Montreat; Univ. of Mich., 1916	1918	1918
Lott, Wm. G., Asheville; Univ. of Colo., 1929	1930	1931
Lynch, J. M., Asheville; Univ. of Md., 1904	1912	1913
MacRae, J. D., Jr., Asheville; Univ. of Pa. Med. School, 1927	1927	1930
McCall, A. C., Asheville; Univ. of Md., 1910	1910	1912
McCracken, C. M., Fairview; N. C. Med. Coll., 1896	1896	1904
Mears, George A., Asheville; Med. Coll. Syracuse Univ., 1924	1924	1927

Montgomery, Kenneth E., Asheville; Univ. Louisville, 1917	1920	1920
Moore, Julian A., Asheville; Univ. of Pa., 1918	1918	1921
Morgan, B. E., Asheville; Univ. of Tenn., 1917	1921	1921
Morgan, G. A., Asheville; Univ. of Tenn., 1917	1920	1925
Murphy, Gibbons W., Asheville; Emory Univ., 1923	1923	1927
Norburn, Chas. S., Asheville; Univ. of Va., 1917	1921	1924
Norburn, R. L., Asheville; Vanderbilt Univ., 1925	1925	1927
Ogilvie, Hanson S., Asheville; Med. Coll. Va., 1909	1926	1927
Orr, Chas. C., Asheville; Univ. of Md., 1904	1904	1905
Orr, P. B., Asheville; Jeff. Med. Coll., 1901	1901	1904
Parker, Geo. F., Asheville; Univ. of Pa., 1923	1924	1926
Pendleton, Wilson, Asheville; Univ. of Va., 1908	1919	1920
Pritchard, G. L., Black Mountain; Univ. Coll. of Med., Richmond, 1913	1913	1926
Reeves, A. F., Asheville; Geo. Washington Univ., 1906	1909	1910
Reeves, R. J., Leicester; Vanderbilt Univ., 1913	1913	1922
Reynolds, C. V., Asheville (Hon.); Univ. of N. Y., 1895	1895	1896
Rich, J. C., Candler; Univ. of Nashville, 1908	1908	1931
Richardson, F. H., Black Mountain; Cornell Univ. Med. Coll., 1906	1919	1920
Ringer, Paul H., Asheville; Columbia Univ. P. and S., N. Y., 1904	1906	1907
Schaffle, Karl, Asheville; Univ. of Pa., 1907	1926	1927
Schoenheit, E. W., Asheville; Jeff. Med. Coll., 1920	1920	1921
Scott, R. C., Asheville; Jeff. Med. Coll., 1902	1916	1919
Sevier, D. E., Asheville (Hon.); Jeff. Med. Coll., 1895	1895	1899
Sevier, J. T., Asheville (Hon.); Jeff. Med. Coll., 1895	1895	1899
Smith, B. R., Asheville; Jeff. Med. Coll., 1911	1913	1914
Sprinkle, C. N., Weaverville; Jeff. Med. Coll., 1910	1910	1922
Stevens, M. L., Asheville (Hon.); Balt. Med. Coll., 1891	1892	1893
Suggett, O. L., Asheville; Barnes Med. Coll., 1893	1928	1929
Swann, C. C., Asheville; Tulane Univ., 1926	1930	1931
Tennett, G. S., Asheville (Hon.); N. C. Med. Coll., 1894	1894	1898
Terry, George H. B., Oteen; Jeff. Med. Coll., 1895	1925	1927
Thompson, A. C., Asheville; Georgetown Univ., 1911	1921	1922
Wanstrom, Ruth, Asheville; Univ. of Mich., 1918	1920	1926
Watkins, John A., Asheville; Tulane University, 1910	1925	1926
Weaver, H. B., Asheville (Hon.); Washington Univ., 1872	1881	1882
Weaver, W. J., Asheville; Jeff. Med. Coll., 1898	1897	1915
Weizenblatt, Sprinza, Asheville; Vienniese Univ. of Med., 1922	1929	1931
White, R. A., Asheville; Univ. Cin. Coll. of Med., 1918	1920	1921
Whitehead, S. L., Asheville; Jefferson Med. Coll., 1921	1921	1929
Williams, L. L., Asheville; Med. Coll. of S. C., 1880	1924	1927
Willis, A. P., Candler; Univ. of N. C., 1904	1904	1919
Woodward, J. G., Asheville; Univ. of Pa., 1925	1925	1927
Young, J. G., Asheville; Univ. of Tenn., 1926	1926	1929

BURKE COUNTY SOCIETY

President: Jas. W. Vernon, Morganton; Jeff. Med. Coll., 1909	1909	1913
Secretary: J. B. Helms, Morganton; Univ. of Pa., 1928	1928	1931

Achard, Lucien, Morganton; R. Univ. of Naples (Italy)	1896	1929
Billings, G. M., Morganton; Tulane Univ. of La., 1919	1919	1920
Kende, Tibor Norbert, Jersey City, N. J., Royal Hungarian Univ., 1922	1927	1928
Kibler, W. H., Morganton; Univ. of Pa., 1914	1914	1918
Kirksey, Jas. J., Morganton; Univ. of Pa., 1921	1921	1923
Long, Benj. L., Glen Alpine; N. C. Med. Coll., 1913	1913	1914
Long, R. H., Morganton; Jeff. Med. Coll., 1916	1916	1923
McCampbell, John, Morganton (Hon.); Balt. Med. Coll., 1894	1895	1899
McLean, Allan, Morganton; Univ. of Md., 1908	1908	.....
Phifer, Edward M., Morganton; N. C. Med. Coll., 1902	1902	1904
Riddle, J. B., Morganton; Vanderbilt Univ., 1898	1904	1904
Saunders, John Rudolph, Morganton; Emory Univ., 1926	1926	1931
Taylor, E. H. E., Morganton; Tulane Univ. La., 1924	1924	1925
Taylor, J. E., Morganton; Med. Coll. Va., 1922	1929	1930
Watkins, F. B., Morganton; Jeff. Med. Coll., 1907	1907	1910

CABARRUS COUNTY SOCIETY

President: I. A. Yow, Concord; N. C. Med. Coll., 1906	1906	1910
Secretary: D. G. Caldwell, Concord; Univ. of Pa., 1923	1925	1925
Bowman, C. R., Kannapolis; Med. Coll. Va., 1928	1929	1930
Bunn, J. J., Mt. Pleasant; N. C. Med. Coll., 1912	1913	1915
Burleson, L. N., Cabarrus; Univ. of Md., 1891	1891	1906
Burns, J. E., Concord; Med. Coll. of Va., 1923	1923	1927
Flowe, R. Frank, Kannapolis; N. C. Med. Coll., 1913	1914	1915
Gouger, Geo. J., Concord (Hon.); Univ. of Md., 1891	1891	1899
Hartsell, J. A., Concord; Jeff. Med. Coll., 1912	1914	1916
Howard, J. R., Concord; Med. Coll. of Va., 1924	1924	1925
Ketner, Fred Y., Concord	.....	1930
King, Richard M., Concord; Jeff. Med. Coll., 1903	1903	1907
Lubchenko, N. E., Harrisburg; N. C. Med. Coll., 1915	1915	1916
MacFayden, Paul R., Concord; Univ. Coll. of Med., Richmond, 1901	1901	1904
Nolan, J. O., Kannapolis; Jeff. Med. Coll., 1921	1921	1922
Pemberton, Wm. D., Concord (Hon.); Univ. of Md., 1887	1887	1887
Reed, John F., Concord; Univ. of N. Y., 1893	1907	1912
Robinson, E. E., Concord; Med. Coll. of Va., 1927	1927	1929
Sossoman, J. C., Midland; N. C. Med. Coll., 1915	1917	1918
Whicker, Guy L., Kannapolis; Univ. of Md., 1926	1926	1928

CALDWELL COUNTY SOCIETY

President: C. R. Russell, Granite Falls; Univ. Coll. of Med., Richmond, 1909	1909	1918
Secretary: W. P. Richardson, Lenoir; Med. Coll. of Va., 1928	1928	1929
Corpening, O. J., Granite Falls; Univ. Coll. of Med., Va., 1906	1906	1907
Goodman, A. B., Lenoir; N. C. Med. Coll., 1898	1897	1910
Hamer, Douglas, Jr., Lenoir; Med. Coll. of S. C.	1927	1929
Hedrick, Clyde R., Lenoir; Georgetown Med. Sch., 1925	1925	1926

Hickman, M. T., Hudson; Univ. of Va., 1909	1909	1910
Houck, Albert, Lenoir (Hon.); P. and S., Balt., 1884	1891	1893
Kent, Alfred A., Winter Pk., Fla. (Hon.); Jeff. Med. Coll., 1885	1885	1894
McNairy, Caroline, Lenoir; Woman's Med. Coll., Pa., 1917	1917	1919
Petrie, Robt. Wm., Lenoir; Univ. of Md., 1903	1903	1903
Rudisill, J. D., Lenoir; Univ. of Md., 1922	1922	1923
White, W. M., Lenoir; Atlanta P. and S., 1899	1899	1905
Wilson, Clarence L., Lenoir; U. S. Grant Univ., 1903	1903	1905

CARTERET COUNTY SOCIETY

President: S. W. Thompson, Jr., Morehead City; Med. Coll. of Va., 1913	1915	1922
Secretary: K. P. B. Bonner, Morehead City; Med. Coll. of Va., 1905	1905	1905
Chadwick, W. S., Beaufort; Univ. of Va., 1928	1928	1930
Davis, George, Beaufort; Kentucky School of Med., 1894	1896	1904
Ferebee, C. G., Morehead City; Med. Coll. of Va., 1902	1904	1904
Hyde, Francis Edward, Beaufort; West. Res. Univ., 1920	1925	1926
Johnson, Otis H., Morehead City, Atlanta Med., 1905	1926	1926
Lewis, C. W., Welch, West Va.; Med. Coll. of Va., 1930	1930	1931
Mason, C. N., Newport; Coll. P. and S., Balt., 1882	1899	1930
Mason, Manly, Newport; Tulane University, 1924	1924	1925
Maxwell, C. S., Beaufort; Univ. of the South, Sewanee, 1900	1899	1904
Royal, Ben F., Morehead City; Jeff. Med. Coll., 1909	1909	1909

CASWELL COUNTY SOCIETY—(See Alamance-Caswell)

CATAWBA COUNTY SOCIETY

President: H. C. Menzies, Hickory (Hon.); N. C. Med. Coll., 1894	1894	1899
Secretary: Glenn Long, Newton; N. C. Med. Coll., 1912	1912	1915
Craft, C. C., Hickory; Geo. Wash. Univ., 1909	1909	1930
Fresh, W. M., Hickory	.....	1927
Frye, Glenn R., Hickory; Jeff. Med. Coll., 1921	1921	1923
Keever, James W., Hickory	.....	1930
Kluttz, A. F., Maiden; Jeff. Med. Coll., 1917	1917	1920
Long, Fred Y., Catawba; Balt. and N. C. Med. Coll.	1898	1898
Norman, J. S., Hickory; P. and S., Balt., 1909	1911	1920
Price, K. A., Hickory; Univ. of Va., 1907	1907	1909
Shuford, Jacob H., Hickory; Univ. of Mich., 1901	1902	1902
Speas, W. P., Hickory; Med. Coll. of Va., 1912	1911	1912

CHATHAM COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Denson, H. A., Bennett; Central Coll. P. and S., Indianapolis, 1887	1913	1913
Edwards, J. D., Siler City (Hon.); Louisville Med. Coll., 1887	.....	1894
McBane, T. W., Pittsboro	.....	.....
Palmer, R. W., Gulf; Louisville Med. Coll., 1890	.....	1891

CHEROKEE COUNTY SOCIETY

President: B. G. Webb, Andrews; Louisville Med. Coll., 1885	1885	1885
Secretary: Edw. E. Adams, Murphy; Jeff. Med. Coll., 1923	1923	1924
Adams, N. B., Murphy; Tenn. Med. Coll., 1896	1909	1909
Heighway, S. C., Murphy; Med. Coll. of Ohio, 1885	1904	1898
Herbert, Fred L., Andrews; Tenn. Med. Coll., 1904	1912	1912
Hill, J. N., Murphy; Univ. of Louisville, 1909	1909	1909
Orr, C. V., Andrews; Atlanta Sch. of Med., 1909	1909	1909
Tidwell, J. E., Andrews; Chattanooga Med. Coll., 1903	1909	1915
Young, G. McD., Postell; Lincoln Mem. Univ., 1916	1917	1918

CHOWAN-PERQUIMANS COUNTIES SOCIETY

President:		
Secretary:		
Brinn, T. P., Hertford; Univ. of Pa., 1923	1923	1927
Cox, Thomas A., Hertford; Univ. of Md., 1892	1907	1918
Newby, G. E., Hertford; Jeff. Med. Coll., 1900	1901	1916
Powell, Jesse A., Edenton; Coll. of P. and S., Balt., 1907	1908	1909
Whichard, M. P., Edenton; Univ. of Md., 1910	1910	1918
Williams, L. P., Edenton; Bellevue Med. Coll., 1918	1919	1921

CLEVELAND COUNTY SOCIETY

President: E. B. Lattimore, Shelby; Bellevue Med. Coll., 1897	1896	1904
Secretary: Sam M. Schenk, Shelby; Univ. of Pa., 1923	1923	1926
Aydlette, Jos. P., Earl; Kentucky University, 1901	1903	1903
Bridges, D. T., Lattimore; Emory Univ., 1926	1926	1927
Ellis, R. C., Shelby (Hon.); Balt. Univ. Med. School,, 1886	1889*	1891
Gold, Ben, Shelby; P. and S., Balt., 1920	1920	1922
Gold, T. B., Shelby; N. C. Med. Coll., 1911	1911	1915
Harbison, J. W., Shelby; Johns Hopkins, 1919	1919	1924
Houser, E. A., Shelby; Chattanooga Med. Coll., 1898; Balt. Univ., 1902	1902	1904
Kendall, B. H., Shelby; Univ. of Md., 1929	1929	1931
Lackey, W. J., Fallston; Va. Medical College, 1928	1928	1929
Lee, Lawrence V., Lattimore; Emory Univ. School of Med., 1894	1897	1904
Mitchell, W. F., Shelby; Univ. of Md., 1889	1900	1904
Moore, D. F., Shelby; Jeff. Med. Coll., 1925	1925	1927
Oates, George, Grover; Univ. of Louisville, 1894	1902	1904
Ramseur, W. L., Kings Mountain; Med. Coll. of S. C., 1926	1927	1929
Royster, S. S., Shelby; Tenn. Med. Coll., 1891	1896	1904
Sherrill, H. R., Lawndale; Univ. of Tenn., 1926	1926	1927

COLUMBUS COUNTY SOCIETY

President: R. B. Whitaker, Whiteville; Univ. Coll. of Med., Richmond, 1912	1912	1913
Secretary: Floyd Johnson, Whiteville; Memphis Hosp. Med. Coll., 1903	1903	1904
Baggett, Leaman, Whiteville; N. C. Med. Coll., 1907	1907	1909
Blake, J. F., Chadbourn; N. C. Med. Coll., 1905	1905	1907

Cox, G. S., Tabor; N. C. Med. Coll., 1911	1911	1914
Crowell, W. H., Whiteville; Univ. of Md., 1895	1895	1908
Floyd, L. D., Fair Bluff; N. C. Med. Coll., 1911	1911	1912
Moore, T. V., Acme; Balt. Med. Coll., 1901	1901	1911
Sadler, R. C., Whiteville; N. C. Med. Coll., 1912	1912	1915
Smith, W. F., Chadbourn; N. C. Med. Coll., 1904	1904	1905

CRAVEN COUNTY SOCIETY

President: D. E. Ford, New Bern; Univ. of Mich., 1908	1925	1924
Secretary: Joseph R. Latham, New Bern; Jeff. Med. Coll., 1917	1917	1923
Barker, Christopher S., New Bern; Jeff. Med. Coll., 1909	1909	1924
Bender, E. L., New Bern; Med. Coll. of Va., 1916	1916	1925
Daniels, R. L., New Bern; Med. Coll. of Va., 1912	1912	1919
Duffy, R. N., New Bern; Johns Hopkins, 1906	1907	1908
Duguid, James, Vanceboro; N. C. Med. Coll., 1906	1906	1912
Duguid, Jos. W., Dover; N. C. Med. Coll., 1905	1905	1912
Gibbs, N. M., New Bern; Univ. of Md. and Coll. P. and S., Balt., 1896	1895	1897
Jones, R. Duval, New Bern; Univ. of Md., 1896	1897	1897
Patterson, Joseph F., New Bern; Jeff. Med. Coll., 1906	1906	1906
Pollock, Raymond, New Bern; Jefferson Med. Coll., 1897	1900	1900
Wadsworth, H. B., New Bern; Johns Hopkins, 1918	1918	1923

CUMBERLAND COUNTY SOCIETY

President: W. C. Verdery, Fayetteville; Univ. of Ga., 1915	1920	1921
Secretary: O. L. McFadyen, Fayetteville; N. C. Med. Coll., 1912	1912	1912
Allgood, R. A., Fayetteville; Univ. of Md. and Coll. of P. and S., Balt., 1912	1915	1917
Ashcraft, J. E., Fayetteville; Univ. of N. Y., 1887	1887	1890
Averitt, K. G., Cedar Creek (Hon.); Balt. Med. Coll., 1893	1893	1902
Baker, David, Fort Bragg; Barnes Medical Coll., St. Louis, 1893	.....	1928
Bullock, Thomas C., Autryville; P. and S., Balt., 1885	1885	1905
Chester, P. J., Fayetteville; N. C. Med. Coll., 1913	1913	1920
Currie, D. S., Parkton; N. C. Med. Coll., 1906	1906	1907
Highsmith, J. D., Fayetteville; Jeff. Med. Coll., 1918	1918	1920
Highsmith, J. F., Fayetteville (Hon.); Jeff. Med. Coll., 1889	1889	1893
Highsmith, Seavy, Fayetteville; Univ. Coll. of Med., Richmond, 1901	1901	1902
Jordan, Wm. S., Fayetteville; Univ. of N. C., 1906	1906	1907
Kirksey, W. A., Hope Mills; Washington Univ., 1921	1921	1924
Lilly, James M., Fayetteville; Univ. Coll. of Med., Richmond, 1903	1903	1904
McKay, W. P., Fayetteville; Tulane Univ., 1916	1916	1921
Maddigan, Maj. J. J., Fort Bragg	.....	1931
Olive, P. W., Fayetteville; P. and S., Balt., 1907	1907	1909
Pittman, R. L., Fayetteville; Jeff. Med. Coll., 1910	1910	1912
Rainey, W. T., Fayetteville; Univ. Coll. of Med., Richmond, 1913	1913	1916
Robertson, J. N., Fayetteville; Med. Coll. of Va., 1923	1923	1924
Williams, Lester L., Fayetteville; Md. Med. Coll., 1913	1913	1916

CURRITUCK COUNTY SOCIETY

President:		
Secretary:		
Griggs, W. T., Poplar Branch (Hon.); Univ. of Va., 1896	1896	1901

DAVIDSON COUNTY SOCIETY

President: R. G. Jennings, Thomasville; N. C. Med. Coll., 1913	1913	1920
Secretary: Grover C. Gambrell, Lexington; Univ. of Ga., 1912	1923	1924
Clyatt, Claude Eugene, Denton; Univ. of Ga., 1911	1923	1924
Farrington, R. K., Thomasville; Univ. Cinn., 1925	1925	1927
Hunt, W. Bryce, Lexington; Univ. of Md., 1923	1923	1924
Leonard, J. C., Jr., Lexington; Jeff., 1928	1928	1931
McCoy, C. M., Thomasville; Tulane, 1927	1927	1930
Mock, Frank Lowe, Lexington, Rt. 3; N. C. Med. Coll., 1908	1908	1911
Phillips, C. H., Thomasville; Balt. Univ. School of Med., 1892	1893	1911
Sharpe, C. R., Lexington; Jeff. Med. Coll., 1914	1914	1917
Smith, J. A., Lexington; N. C. Med. Coll., 1915	1915	1917
Smith, William Gordon, Thomasville; Tulane Univ., 1927	1927	1928
Sowers, Jacob L., Lexington; Univ. of Md., 1921	1921	1924
Terry, J. R., Lexington; Univ. of Louisville, 1911	1912	1912
Vestal, Willis J., Lexington (Hon.); P. and S., Balt., 1883	1889*	1893
Yokeley, R. V., Thomasville; N. C. Med. Coll., 1911	1911	1912
Zimmerman, Robert U., Lexington, Rt. 4; N. C. Med. Coll., 1901	1901	1904

DAVIE COUNTY SOCIETY

President: W. C. Martin, Mocksville; P. and S., Balt., 1888	1888	1904
Secretary: A. B. Byerly, Cooleemee; Univ. College of Med., Richmond, 1896	1896	1904
Harding, S. A., Mocksville; N. C. Med. Coll., 1910	1910	1913
Martin, Lester P., Mocksville; Jeff. Med. Coll., 1920	1920	1921
Rodwell, Jno. W., Mocksville (Hon.); P. and S., Balt., 1895	1895	1896

DUPLIN COUNTY SOCIETY

President:		
Secretary:		
Carr, Ransom Lee, Rose Hill; Balt. Med. Coll., 1907	1908	1909
Carroll, Jno. William, Wallace; Univ. of Md., 1903	1903	1903
Farrior, J. W., Warsaw; Univ. of Pa., 1912	1913	1917
Gooding, G. V., Kenansville		1931
Landen, Jefferson F., Chinquapin; U. Coll. of Med., Va., 1905	1905	1907
Maxwell, J. F., Pink Hill	1889*	1917
Morton, J. X., Faison; N. C. Med. Coll., 1915	1915	1922
Quinn, Robert F., Magnolia; N. C. Med. Coll., 1912	1913	1916
Robinson, J. D., Wallace; Univ. of Md., 1915	1915	1917
Straughan, J. W., Warsaw; Med. Coll. of Va., 1924	1924	1925
Williams, Jas. M., Warsaw; Univ. of Md., 1902	1902	1902

DURHAM-ORANGE COUNTIES SOCIETY

President: W. R. Stanford, Durham; Univ. of Pa., 1919	1919	1923
Secretary: A. H. London, Durham; Univ. of Pa., 1927	1927	1930

Abernethy, E. A., Chapel Hill; Univ. Coll. of Med., Richmond, 1901; Geo. Wash. Univ., 1903	1901	1914
Abernethy, Wm. Borden, Chapel Hill; Univ. of Pa., 1929	1929	1930
Adams, C. A., Durham; P. and S., Balt., 1892	1892	1901
Adkins, M. T., Durham; Johns Hopkins, 1907	1915	1916
Alyea, Edwin P., Durham; Johns Hopkins Med. Sch., 1823	1930	1930
Amoss, Harold L., Durham; Harvard Med. Sch., 1911	1929	1930
Anderson, W. B., Durham; Johns Hopkins, 1924	1927	1927
Bass, H. H., Durham (Hon.); Univ. Coll. of Med., 1899	1899	1900
Baynes, R. H., Durham; Univ. of Md., 1914	1914	1920
Bitting, Numa D., Durham; Jeff. Med. Coll., 1907	1907	1909
Boddie, Needham P., Durham (Hon.); P. and S., Balt., 1883	1883	1883
Booker, Lyle S., Durham; Va. Univ. Med. Coll., 1908	1910	1911
Boone, W. H., Durham; N. C. Med. Coll., 1902	1902	1910
Boone, W. W., Durham; Jeff. Med. Coll., 1923	1923	1925
Bowles, Francis N., Durham; Med. Coll. of Va., 1924	1924	1926
Brinkley, H. M., Durham; Jeff. Med. Coll., 1919	1919	1923
Brooks, B. U., Durham; Univ. of Md., 1905	1905	1907
Bullitt, J. B., Chapel Hill; Univ. of Va., 1897	1914	1915
Campbell, A. S., Durham; Chicago Coll. Med. and Surg., 1917	1923	1924
Chiles, George G., Durham; Med. Coll. of Va., 1926	1928	1928
Coppridge, W. M., Durham; Jeff. Med. Coll., 1918	1919	1920
Darden, O. B., Westbrook Sanatorium, Richmond Va., Med. Coll. of Va., 1918	1920	1920
Davison, Wilburt C., Durham; Johns Hopkins, 1917	1927	1927
Eagle, Watt W., Durham; Johns Hopkins, 1925	1929	1930
Fassett, Burton W., Durham; Balt. Med. Coll., 1898	1899	1909
Felts, Robert L., Durham; Univ. of Md., 1898	1899	1909
Fields, Leonard E., Chapel Hill; Univ. of Pa., 1929	1929	1931
Gorham, H. J., Durham; Univ. of Md., 1926	1926	1927
Goudge, Mabel E., West Durham; Ohio State Univ., 1922	1925	1927
Hardee, W. P., Durham; Jeff. Med. Coll., 1912	1912	1924
Hart, Deryl, Durham; Johns Hopkins, 1921	1929	1930
Hayes, R. B., Hillsboro; Univ. of Md., 1906	1910	1917
Haywood, C. L., Jr., Durham; Harvard, 1927	1929	1930
Hicks, Calvin S., Durham; Univ. of Md., 1904	1904	1904
Holloway, Joseph C., Durham; Tulane Univ., 1927	1927	1929
Holloway, Robert Lee, W. Durham (Hon.); Med. Coll. of Va., 1893	1893	1901
Johnson, N. M., Durham (Hon.); Wash. Univ. Sch. of Med., 1877	1889	1879
Johnston, Christopher, Durham; Johns Hopkins, 1926	1930	1930
Kerns, T. C., Durham; Univ. of Pa., 1911	1911	1912
Lloyd, B. B., Carrboro; Univ. of N. C., 1909	1909	1914
MacNider, Wm. deB., Chapel Hill; Univ. of N. C., 1903	1903	1903
McCutcheon, W. B., Durham; Med. Coll. of Va., 1921	1921	1924
McPherson, S. D., Durham; Univ. of Md., 1903	1903	1912
Mangum, C. S., Chapel Hill; Jeff. Med. Coll., 1894	1896	1898
Mann, Thos. A., Durham; Univ. of Md., 1903	1903	1924

Manning, I. H., Chapel Hill (Hon.); Long Island Coll. Hosp., N. Y., 1897	1899	1901
Manning, Jno. M., Durham (Hon.); Bellevue Med. Coll., 1882	1884	1884
Markham, Blackwell, Durham; Harvard Med. Coll., 1922	1922	1925
Nichols, Rhodes E., Durham (Hon.), Rt. 8; Va. Med. Coll., Richmond, 1890	1890	1904
Patrick, J. E., Bahama; Univ. Coll. of Med., Va., 1900	1900	1917
Perry, D. R., Durham; Jeff. Med. Coll., 1919	1919	1922
Powell, Albert H., Durham; Univ. of Ga., 1924	1925	1925
Reeves, Robert J., Durham; Baylor Univ., 1924	1930	1930
Roberson, Foy, Durham; Jeff. Med. Coll., 1909	1909	1912
Roberts, Bryan N., Hillsboro; Univ. of Md., 1925	1925	1930
Roberts, B. W., Durham; Univ. of Md., 1924	1924	1927
Robertson, E. M., Durham; Tulane Univ., 1912	1912	1913
Ross, George H., Durham; Univ. Tenn., 1899	1899	1904
Ross, Robert A., Durham; Univ. of Pa., 1922	1922	1925
Ruffin, J. M., Durham; Univ. Va., 1926	1930	1931
Schuler, J. E., East Durham; Med. Coll. of Va., 1914	1920	1922
Shands, Alfred Rives, Jr., Durham; Univ. of Va., 1922	1929	1930
Smith, Annie T., Durham; Univ. of Ill., 1923	1925	1926
Smith, D. T., Durham; Johns Hopkins, 1922	.....	1931
Speed, J. A., Durham; Jeff. Med. Coll., 1914	1914	1916
Spikes, N. O., Durham; Jeff. Med. Coll., 1924	1924	1927
Stanford, Lois Foote, Durham; Univ. of Pa., 1921	1923	1924
Stoner, I. J., West Durham; Memphis Med. Coll., 1898	1921	1922
Strowd, W. A., Durham; Univ. of N. C., 1909	1909	1926
Sweaney, H. M., Durham; Univ. of Pa., 1919	1919	1920
Toy, Calvert R., Milltown, N. J.; Univ. of Pa., 1923	1923	1926
Tyler, E. R., Durham; Jeff. Med. Coll., 1923	1923	1927
Watkins, G. T., Durham; Jeff. Med. Coll., 1915	1915	1917
Watkins, W. M., Durham; Jeff. Med. Coll., 1923	1923	1925

EDGECOMBE-NASH COUNTIES SOCIETY

President: Spencer P. Bass, Tarboro; Univ. of Va., 1906	1907	1909
Secretary: N. P. Battle, Rocky Mount; Univ. of Pa., 1926	1930	1931
Bailey, C. W., Rocky Mount	.....	1930
Baker, Julian Meredith, Tarboro (Hon.); Univ of Md., 1879	1879	1879
Barber, Y. M., Macclesfield; Univ. of Md., 1914	1917	1918
Battle, Ivan Proctor, Rocky Mount; Jeff. Med. Coll., 1904	1905	1914
Boice, E. S., Rocky Mount; Univ. of Pa., 1909	1914	1915
Brantley, Hassell, Spring Hope; Jeff. Med. Coll., 1888	1888	1901
Brantley, J. C., Spring Hope; Jeff. Med. Coll., 1916	1916	1922
Broadway, R. E., Tarboro; Med. Coll. of S. C., 1911	1923	1926
Coppedge, T. O., Nashville; Coll. of Phys. and Surg., Balt., 1908	1909	1917
Cutchin, J. Henry, Whitakers; Univ. Coll. of Med., Rich., 1911	1911	1915
Daughtridge, A. L., Rocky Mount; Univ. of Md., 1924	1924	1924
Deans, A. W., Battleboro; Med. Coll. of Va., 1915	1915	1917
DeLoatch, M. W., Tarboro; Med. Coll. Va., 1928	1928	1930

Denton, A. L., Castalia; Med. Coll. Va., 1918	1921	1923
Dixon, W. H., Rocky Mount; Jefferson Med. Coll., 1919	1919	1922
Fleming, M. I., Rocky Mount; Jeff. Med. Coll., 1904	1906	1919
Green, Wm. W., Tarboro; Univ. N. C., 1908	1908	1910
Harrell, Samuel N., Tarboro; Univ. of Md., 1897	1897	1904
House, W. O., Tarboro; 1927	1927	1930
Jones, W. S., Nashville; 1927	1927	1927
Kinlaw, Wm. Bernard, Rocky Mount; Univ. of Pa., 1920	1920	1923
Knowles, D. L., Rocky Mount; Univ. of Pa., 1918	1918	1920
Kornegay, Lemual W., Rocky Mount; N. C. Med. Coll., 1906	1906	1914
Lane, John L., Rocky Mount; N. C. Med. Coll., 1906	1906	1914
Large, H. Lee, Rocky Mount; Med. Coll. Va., 1917	1918	1918
Looney, J. J. W., Rocky Mount; Univ. of Va., 1909	1919	1919
Martin, J. H., Red Oaks; Univ. of Nashville, 1903	1904	1916
Norfleet, A. C., Tarboro; Univ. of Pa., 1924	1925	1927
Perry, E. M., Rocky Mount; P. and S., Balt., 1907	1907	1920
Raby, J. G., Tarboro; Univ. Coll. of Med., 1911	1911	1912
Smith, C. T., Rocky Mount; Univ. of Pa., 1918	1918	1920
Speight, J. A., Rocky Mount; Univ. of La., 1914	1915	1916
Staley, S. Walter, Rocky Mount; Med. Coll. of S. C., 1901	1901	1914
Stone, M. L., Rocky Mount; Univ. of Pa.	1928	1929
Sykes, J. V., Rocky Mount; Univ. Pa., 1929	1929	1930
Thorp, A. T., Rocky Mount; Univ. of Pa., 1921	1921	1923
Vann, J. R., Jr., Spring Hope; Jeff. Med. Coll., 1917	1917	1919
Williams, T. G., Conetoe; Geo. Wash. Univ., 1911	1913	1916
Willis, B. C., Rocky Mount; Med. Coll. of Va., 1909	1916	1916
Winstead, J. A., Rocky Mount; N. C. Med. Coll., 1914	1916	1916
Wooten, Amos Monroe, Pinetops; Univ. of N. C., 1910	1910	1911

FORSYTH COUNTY SOCIETY

President: J. R. Perkins, Winston-Salem; Va. Med. Coll., 1904	1910	1917
Secretary: J. Roy Hege, Winston-Salem; Univ. of Md., 1916	1916	1917
Ader, O. L., Walkertown; Univ. of Pa., 1925	1925	1927
Benbow, E. V., Winston-Salem; Jeff., 1925	1925	1927
Bowers, M. A., Winston-Salem; Tulane Univ., 1911	1911	1914
Brown, F. B., Winston-Salem; Univ. of Ga., 1926	1926	1930
Butler, Leroy J., Winston-Salem; Med. Coll. of Va., 1915	1920	1921
Bynum, John, Winston-Salem (Hon.); Univ. of N. Y., 1892	1892	1893
Carlton, Romolus L., Winston-Salem; Univ. of Md., 1906	1906	1908
Casstevens, J. C., Winston-Salem; Va. Med. Coll., 1926	1926	1927
Cook, J. L., Winston-Salem; Univ. of Pa., 1925	1925	1927
Cooke, G. C., Winston-Salem; Univ. of Md., 1919	1919	1920
Couch, V. F., Winston-Salem; P. and S., New York, 1911	1911	1919
Craig, S. D., Winston Salem; Tulane Univ., 1908	1911	1912
Dalton, Wm. N., Winston-Salem; N. C. Med. Coll., 1904	1904	1905
Daugherty, J. E., Brooklyn, N. Y.; Barnes Med. Coll., 1902	1920	1920
Davis, Thos. W., Winston-Salem (Hon.); S. C. Med. Coll., 1898	1899	1899
DeLaney, C. O., Winston-Salem; Jefferson, 1919	1919	1926
Eskew, D. C., Winston-Salem; Univ. of Va., 1924	1924	1928

Garvey, R. R., Winston-Salem; N. C. Med. Coll., 1915	1915	1919
Gray, Eugene Price, Winston-Salem; Johns Hopkins, 1906	1907	1909
Grimes, W. L., Winston-Salem; Johns Hopkins, 1910	1910	1915
Hanes, F. M., Winston-Salem; Johns Hopkins, 1908	1916	1917
Hurdle, S. W., Winston-Salem; Jeff. Med. Coll., 1914	1914	1916
Izlar, H. L., Winston-Salem; Med. Coll. S. C., 1915	1916	1916
Johnson, Wingate M., Winston-Salem; Jeff. Med. Coll., 1908	1908	1911
Jones, Beverly N., Winston-Salem; Med. Coll., of Va., 1915	1915	1921
Kapp, Henry H., Winston-Salem; Jeff. Med. Coll., 1901	1901	1904
Keiger, O. R., Winston-Salem; Univ. Coll. of Med., Richmond, 1911	1911	1914
Kerr, Jas. Edwin, Winston-Salem (Hon.); Univ. of Md., 1897	1898	1898
Kirby, W. L., Winston-Salem; Vanderbilt, 1925	1926	1930
Lassiter, V. C., Winston-Salem; Emory Univ., 1925	1928	1928
Linville, Aaron Y., Winston-Salem (Hon.); Univ. of N. Y., 1889	1889	1896
Lockett, Everett A., Winston-Salem; Univ. of Pa., 1902	1904	1904
Long, Vann McKee, Winston-Salem; N. C. Med. Coll., 1906	1906	1911
McCants, C. H., Winston-Salem		
Moore, R. A., Winston-Salem; N. C. Med. Coll., 1911	1911	1917
Munt, H. F., Winston-Salem; Va. Med. Coll., 1911	1914	1916
Paddison, Jno. Robt., Kernersville; Univ. of Md., 1902	1902	1913
Pepper, John Kerr, Winston-Salem; P. and S., Balt., 1907	1908	1908
Pfohl, Samuel F., Winston-Salem (Hon.); Univ. of Pa., 1894	1898	1898
Pool, B. B., Winston-Salem; Jeff. Med. Coll., 1923	1923	1925
Rankin, S. W., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Redfern, T. C., Winston-Salem; L. I. Med. Coll. Hosp., 1916	1921	1921
Rousseau, J. P., Winston-Salem; Univ. of Md., 1918	1920	1920
Salmons, L. R., Winston-Salem; N. C. Med. Coll., 1912	1912	1916
Schallert, P. O., Winston-Salem; Univ. of Ill. Med. Dept., 1904	1911	1912
Simmons, R. R., Winston-Salem; Va. Med. Coll., 1917	1923	1924
Slate, John S., Winston-Salem; Univ. Coll. Med., Richmond, Va., 1900	1899	1920
Spainhour, Ellis H., Winston-Salem (Hon.); Balt. Med. Coll., 1898	1898	1898
Speas, D. C., Rt. 2, Winston-Salem; Univ. of Md., 1911	1913	1924
Spencer, Wm. O., Winston-Salem (Hon.); Jeff. Med. Coll., 1891	1891	1894
Spicer, Richard W., Winston-Salem; N. C. Med. Coll., 1910; Univ. of Pa., 1911	1910	1916
Sprunt, W. H., Jr., Winston-Salem; Univ. of Pa., 1918	1918	1925
Street, C. A., Winston-Salem; Harvard, 1918	1918	1925
Strickland, Edward F., Winston-Salem (Hon.); Univ. of New York, 1887	1887	1893
Thompson, Edg. S., Winston-Salem; Univ. of N. Y., 1919	1919	1921
Tuttle, Reuben G., Winston-Salem; N. C. Med. Coll., 1909	1909	1913
Valk, A. deT., Winston-Salem; Johns Hopkins, 1910	1913	1914
Wall, R. L., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Whittington, Jas. B., Winston-Salem; N. C. Med. Coll., 1911	1911	1913
Wiggins, J. C., Winston-Salem; Univ. of Pa., 1910	1910	1911

Wright, O. E., Winston-Salem; Emory Univ., 1924	1924	1928
Wyatt, Wortham, Winston-Salem; Univ. of Pa., 1913	1913	1916
Wylie, W. DeK., Winston-Salem; Univ. of Va., 1924	1926	1928
Yoder, Paul A., Winston-Salem; Univ. Pa., 1923	1923	1925

FRANKLIN COUNTY SOCIETY

President: J. O. Newell, Louisburg; P. and S., Balt., 1910	1910	1912
Secretary: R. B. Henderson, Franklinton; Univ. of Md., 1884	1884	1904
Burt, S. P., Louisburg; P. and S., Balt., 1896	1896	1904
Johnson, B. C., Bunn; Univ. of N. C., 1909	1909	1910
Perry, A. H., Wood; Univ. of Md. and P. and S., Balt., 1924	1924	1925
Perry, H. G., Louisburg; P. and S., Balt., 1915	1915	1916
Timberlake, C. V., Youngsville; Jefferson Med. Coll., 1915	1915	1922
Timberlake, Richard E., Youngsville; Jeff. Med. Coll., 1908	1908	1910
Yarborough, R. F., Louisburg (Hon.); Geo. Wash. Univ., 1898	1899	1899

GASTON COUNTY SOCIETY

President:		
Secretary: R. H. McDowell, Belmont		1931
Adams, Charles E., Gastonia (Hon.); Univ. of Md., 1897	1885	1885
Allen, M. H., Cramerton		1931
Anders, McT. G., Gastonia (Hon.); Md. Med. Coll., 1901	1902	1902
Anderson, James A., Gastonia; Univ. of Georgia, 1904	1909	1909
Anthony, J. E., Kings Mountain; Univ. of Tenn., 1911	1911	1911
Belk, Geo. W., Gastonia; Atlanta School of Med., 1913	1918	1924
Blair, J. L., Gastonia; Atlanta Med. Coll., 1915	1920	1921
Campbell, J. W., Gastonia; P. and S., Balt., 1893	1919	1920
Eddleman, Hall M., Gastonia (Hon.); College Phys. and Surg., Balt., 1886	1889	1904
Garrison, D. A., Gastonia (Hon.); Louisville Med. Coll., 1896	1896	1900
Glenn, Lucius N., Gastonia; Univ. of Md., 1897	1897	1904
Groves, R. B., Lowell; Med. Coll. of Va., 1924	1924	1924
Hemmingway, J. D., Gastonia; N. C. Med. Coll., 1915	1917	1917
Hood, J. Sidney, Gastonia; Jeff. Med. Coll., 1907	1907	1910
Howser, Forest M., Cherrydale; Univ. of Pa., 1928	1929	1930
Hunter, W. B., Gastonia; Univ. of Pa., 1911	1911	1920
Johnson, R. Lee, Gastonia; Jefferson, 1911	1911	1918
Jones, W. M., Gastonia		
Lyday, C. E., Gastonia; Atlanta Sch. Med., 1910	1912	1913
McAdams, C. R., Belmont; N. C. Med. Coll., 1912	1912	1916
McConnell, H. R., Gastonia		
Miller, Oscar L., Charlotte; Atlanta Coll. of P. and S., 1912	1921	1922
Miller, R. C., Gastonia; N. C. Med. Coll., 1909	1918	1919
Parks, W. B., Gastonia; Univ. of Md., 1924	1924	1927
Patrick, Geo. R., Jr., Bessemer City; Univ. of Md., 1916	1916	1920
Patrick, L. N., Gastonia; Univ. of Md., 1909	1910	1913
Pressly, J. M., Belmont; N. C. Med. Coll., 1915	1915	1920
Pugh, Charles H., Gastonia; N. C. Med. Coll., 1910	1910	1913
Quickel, Thomas C., Gastonia; Tulane Univ., 1900	1899	1904

Reid, James W., Lowell; Jefferson, 1908	1908	1910
Rhyne, Robert Edgar, Gastonia; N. C. Med. Coll., 1907	1907	1908
Swann, Jos. F., Gastonia; P. and S., Balt., 1896	1896	1905

GATES COUNTY SOCIETY

President:		
Secretary:		
Blanchard, T. W., Hobbsville; Med. Coll. of Va., 1911	1911	1919
Carter, Thomas L., Gatesville; Med. Coll. of Va., 1917	1917	1928

GRANVILLE COUNTY SOCIETY

President: Roy L. Noblin, Oxford; Med. Coll. of Va., 1924	1924	1924
Secretary: R. W. Taylor, Oxford; Tulane Univ., 1926	1926	1928
Bradsher, J. S., Stovall; Univ. of Va., 1925	1925	1927
Daniel, N. C., Oxford; N. C. Med. Coll., 1895	1895	1902
Elliott, J. C., Oxford; Univ. of Md., 1926	1926	1928
Fitch, W. E., French Lick, Ind.; 1891	1891	1927
Hays, B. K., Oxford (Hon.); Univ. Coll. of Med., Va., 1894	1894	1897
Morris, Joseph A., Oxford (Hon.); Vanderbilt Univ., 1890	1893	1899
Sikes, G. T., Youngsville (Hon.); Univ. of Md., 1883	1884	1884
Taylor, Wm. L., Oxford; Univ. of Va., 1900	1901	1901
Thomas, Wm. N., Oxford; Va. Med. Coll., 1911	1911	1914
Thompson, Joseph W., Creedmoor; Ky. Univ. Louisville, 1904	1907	1912
Watkins, Geo. S., Oxford; Univ. Coll. of Med., Va., 1900	1900	1908

GREENE COUNTY SOCIETY

President: Wm. W. Whittington, Snow Hill (Hon.); Louisville Med. Coll., 1895	1895	1902
Secretary: W. E. Dawson, Hookerton; Jefferson, 1920	1920	1922
Carroll, F. W., Hookerton; Med. Coll. of Va., 1925	1926	1927
Harper, J. H., Snow Hill; Jefferson, 1905	1906	1907
Murphy, W. B., Snow Hill; Univ. Coll. of Med., Va., 1903	1903	1905

GUILFORD COUNTY SOCIETY

President: Houston B. Hiatt, High Point		
Secretary: Arthur D. Ownbey, Greensboro; Med. Coll. Va., 1920	1925	1927
Ashworth, W. C., Greensboro (Hon.); P. and S., Balt., 1892	1892	1894
Austin, J. W., High Point; Jeff. Med. Coll., Phila., 1910	1910	1913
Aydlett, H. T., Greensboro; Univ. of Va., 1894	1895	1907
Banner, A. C., Greensboro; Jeff. Med. Coll., 1920	1920	1922
Banner, Chas. W., Greensboro (Hon.); Univ. of Md., 1899	1899	1901
Battle, John T. J., Greensboro (Hon.); P. and S., Balt., 1884	1884	1890
Berry, John, Greensboro; Jeff. Med. Coll., 1908	1908	1920
Best, Benj. W., Greensboro; Coll. of P. and S., Balt., 1884	1884	1920
Bonner, O. B., High Point; Univ. of Md., 1917	1920	1921
Bowman, H. P., Greensboro; Univ. of Tenn., 1894	1894	1905
Brockmann, Harry L., High Point; Univ. of Pa., 1917	1917	1921
Buie, R. M., Greensboro; Jeff. Med. Coll., 1914	1914	1920
Burress, D. A., High Point; Louisville Hosp. Med. Coll., 1908	1922	1924

Burrus, John T., High Point (Hon.); Univ. of Md., 1900; Grant Univ., 1902; Davidson College, 1898	1898	1898
Cater, C. D., Greensboro; Emory Univ., 1920	1923	1924
Coe, Samuel S., High Point; Univ. Coll. of Med., Va., 1911	1912	1913
Cole, Walter F., Greensboro; Johns Hopkins, 1909	1909	1910
Collings, Ruth M., Greensboro; Univ. of Pa., 1923	1926	1927
Cook, H. L., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Cozart, S. R., Greensboro; Med. Coll. of Va., 1923	1923	1925
Davis, P. B., High Point; Jefferson, 1926	1926	1929
Davis, R. B., Greensboro; Med. Coll. of Va., Richmond, 1915	1916	1917
Dees, Ralph Erastus, Greensboro; Univ. of Md., 1906	1908	1909
Dees, Rigdon O., Greensboro; Univ. of Md., 1906	1907	1908
Dick, Julius Vance, Gibsonville; Univ. of N. C., 1907	1907	1908
Dyer, John W., High Point; Univ. of Louisville, 1916	1921	1925
Edwards, V. E., Greensboro; Univ. of Md., 1913	1913	1913
Flagge, Philip W., High Point; Wash. Univ., St. Louis, 1902	1905	1919
Fox, N. A., Guilford College; Univ. of Pa., 1924	1924	1926
Fryar, C. H., Oak Ridge; Med. Coll. of Va.	1919	1928
Gaw, Lois B., Greensboro; Women's Med. Coll., Balt., 1907	1907	1924
Geddie, K. B., High Point; Jeff. Med. Coll., 1921	1921	1923
Gilmore, C. M., Greensboro; Med. Coll. of Va., 1925	1925	1926
Glascock, Joy H., Greensboro; Women's Med. Coll. of Balt., 1896	1896	1907
Gordon, Faith F., Greensboro; Boston Univ. Sch. of Med., 1923	1921	1930
Gove, Anna M., Greensboro (Hon.); Woman's Med. Coll. of New York, Infirmary, 1892	1894	1896
Grayson, C. S., High Point; Geo. Wash. Univ., 1906	1907	1908
Gregg, A. D., Liberty; Med. Coll. of S. C., 1913	1927	1928
Groome, J. G., High Point; Univ. of Ohio, 1924	1924	1925
Harden, R. N., Greensboro; Univ. of Pa., 1922	1922	1924
Harrison, Edmund, Greensboro (Hon.); Univ. Coll. of Med., 1896	1900	1900
Harrison, Edward T., High Point; Johns Hopkins Medical School, 1926	1926	1928
Harvey, W. W., Greensboro; Emory Univ., 1920	1922	1923
Holden, E. C., High Point; Long Island Coll. Hosp., 1911	1920	1924
Holt, D. W., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Holt, W. T., McLeansville (Hon.); Univ. of Tenn., 1890	.....	1896
Hudson, C. C., Greensboro; Univ. Coll. of Med. of Va., 1910	1918	1924
Jackson, Walter Leo, High Point; N. C. Med. Coll., 1911	1911	1913
Jarboe, Parron, Greensboro; Georgetown Univ., 1905	1906	1907
Jennings, C. W., Greensboro; Med. Coll. of Va., 1916	1916	1926
Johnson, Harry L., Greensboro; Univ. of Cinn., 1924	1924	1927
Jones, Wm. M., Greensboro; Univ. of Md., 1903	1903	1903
Julian, Charles A., Greensboro (Hon.); Louisville Med. Coll., 1888	1891	1892
Keiger, James A., Greensboro; Univ. of Va., 1916	1916	1919
Keith, Marion Y., Greensboro; Univ. of Md., 1923	1923	1927
Knight, Wm. P., Greensboro (Hon.); Balt. Med. Coll., 1898	1898	1898
Long, E. F., High Point; Med. Coll. of Va., 1909	1909	1912

Lyday, R. O., Greensboro; Univ. of Pa., 1920	1920	1927
Lyon, B. R., Greensboro; Columbia Univ., 1915	1920	1920
McAnally, James McG., High Point; Univ. of Pa., 1927	1927	1927
McAnally, Wm. J., High Point (Hon.); Balt. Med. Coll., 1897	1896	1899
McCain, Walkup K., High Point; Jeff., 1929	1929	1930
McCain, Wm. R., High Point (Hon.); Univ. of Md., 1897	1898	1898
McGee, J. M., Greensboro; Univ. of Pa., 1925	1927	1927
Maness, A. K., Greensboro; Jeff. Med. Coll., 1928	1928	1929
Mann, I. Thurman, High Point; Jeff. Med. Coll., 1912	1912	1915
Meadows, W. J., Greensboro; Med. Coll. of Ala., 1894	1899	1904
Micheaux, Edward R., Greensboro (Hon.); Univ. of N. Y., 1889	1889	1904
Miles, May S., Greensboro; Laura Mem. Women's Coll. of Med., Cincinnati, Ohio, 1898	1904	1905
Milham, C. G., Jamestown; Jeff. 1927	1927	1930
Moseley, Charles W., Greensboro (Hon.); Balt. Med. Coll., 1893	1893	1896
Neese, Kenneth E., Greensboro; Wash. Univ., 1929	1929	1930
Ogburn, H. H., Greensboro; Johns Hopkins Univ., 1913	1913	1914
Parker, H. R., Greensboro; Univ. of Syracuse, 1923	1924	1925
Pate, J. F., Greensboro; Univ. of Md., and P. and S., Balt., 1908	1908	1915
Patman, W. L., Greensboro; Harvard Med. School, 1921	1926	1927
Patterson, Fred M., Greensboro; Univ. of Pa., 1924	1924	1928
Perry, Robt. E., Greensboro; Univ. of Pa., 1921	1921	1925
Post, J. J., Greensboro; Columbia Univ., 1919	1925	1926
Ravenel, S. F., Greensboro; Johns Hopkins, 1923	1923	1926
Reaves, C. R., Greensboro; Univ. of the South, 1906	1913	1913
Reaves, H. G., Buena Vista, Va.; Univ. of Va., 1927	1927	1929
Reaves, W. P., Greensboro; Univ. of the South, 1903	1905	1907
Reitzel, Claude E., High Point (Hon.); P. & S., Atlanta, 1902	1902	1902
Rhudy, Booker E., Greensboro; Med. Coll. Va., 1916	1926	1927
Roberson, Charles, Greensboro (Hon.); Long Island Coll. Hosp., 1897	1897	1901
Saunders, S. Stewart, High Point; Harvard Med. School, 1924	1926	1927
Schoonover, R. A., Greensboro; Baltimore Med. Coll., 1905	1912	1912
Sharp, O. L., Greensboro; Jeff. Med. Coll., 1922	1924	1925
Sharpe, F. A., Greensboro; Univ. of Va., 1916	1916	1920
Shelburne, P. A., Greensboro; Univ. of Va., 1927	1928	1928
Shohan, Joseph, Greensboro; Coll. P. and S., Balt., 1901	1914	1924
Simmons, L. L., Greensboro; Univ. of Tenn., 1893; Vanderbilt Univ., 1899	1918	1919
Slate, J. W., High Point; Univ. Coll. of Med., Rich., 1900	1899	1925
Smith, Alick T., Greensboro; Med. Coll. of Va., 1908	.....	1913
Spoon, A. O., Greensboro; Univ. of N. C., 1908	1908	1910
Spruill, Jos. L., Jamestown; Univ. of Md., 1895	1895	1907
Stanton, D. A., High Point (Hon.); Vanderbilt Univ., 1887	1887	1891
Stanton, T. M., High Point; Med. Coll. of Va., 1916	1916	1917
Starr, H. F., Greensboro; Jeff. Med. Coll., 1916	1916	1917
Stirewalt, N. S., High Point; Univ. Md., 1909	1915	1927

Sumner, E. A., High Point; Baylor Univ., Tex., 1925	1926	1927
Tankersley, J. W., Greensboro; Jeff. Med. Coll., 1906	1906	1907
Taylor, F. R., High Point; Univ. of Pa., 1913	1913	1915
Taylor, James N., Greensboro; Med. Coll. of Va., 1901	1902	1905
Taylor, Jas. T., Greensboro; Univ. of Mo.; Coll. of P. and S., Balt., 1908	1908	1910
Taylor, S. R., Greensboro; Univ. of Pa., 1921	1921	1924
Taylor, Wesley, Greensboro; U. of Mich., 1899	1925	1926
Thomas, J. G., Greensboro; Med. Coll. Va., 1915	1915	1920
Thompson, C. D., High Point; Univ. of Tenn., 1901	1901	1904
Tice, W. T., High Point; Jeff. Med. Coll., 1927	1927	1929
Turner, J. P., Greensboro; Univ. of Md., 1896	1897	1904
Whittington, Claude, Greensboro; Univ. of Md., 1927	1927	1929
Wilkerson, C. E., Greensboro; Univ. of Nashville, 1907	1908	1909
Williams, John D., Guilford Station (Hon.); Vanderbilt Univ., 1898	1898	1898
Wilson, Albert R., Greensboro (Hon.); Jeff. Med. Coll., 1882	1882	1882
Wolfe, H. C., Greensboro; Med. Coll. of Va., 1917	1917	1920
Wolff, D. R., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Woodruff, Fred G., High Point; Med. Coll. of Va., 1917	1917	1919
York, Alexander A., High Point; Chattanooga Med. Coll., 1907	1907	1909

HALIFAX COUNTY SOCIETY

President: H. G. Lassiter, Weldon; Jeff. Med. Coll., 1918	1918	1920
Secretary: Z. P. Mitchell, Weldon; Med. Coll. of Va., 1920	1920	1921
Beckwith, R. P., Roanoke Rapids; Univ. of Pa., 1911	1913	1916
Jarman, F. G., Roanoke Rapids; Univ. Coll. of Med., Va., 1911	1914	1916
Long, T. W. M., Roanoke Rapids; Univ. Coll. of Med., Va., 1908	1909	1910
McDaniel, L. E., Jackson; Univ. of Md., 1911	1915	1916
Martin, J. W., Roanoke Rapids; Med. Coll. of Va., 1916	1919	1920
Neville, C. H., Scotland Neck; Tulane Univ., 1927	1927	1927
Nicholson, B. M., Enfield; Va. Univ. Coll. of Med., 1910	1910	1913
Royster, Thomas H., Roanoke Rapids; Univ. Coll. of Med., Richmond, 1908	1908	1914
Sewell, Marion H., Jackson; Med. Coll. of Va.	1926	1927
Smith, O. F., Scotland Neck; Univ. Coll. of Va., 1899	1899	1904
Suiter, W. G., Weldon; Med. Coll. of Va., 1917	1917	1920
Thigpen, H. G., Scotland Neck; Jeff. Med. Coll., 1917	1917	1920
Weathers, Bahnson, Rosemary; Wash. Univ. Med. School, St. Louis, 1917	1921	1922

HARNETT COUNTY SOCIETY

President: C. Hector Sexton, Dunn; Univ. of Md., 1890	1890	1904
Secretary: A. T. Wyatt, Lillington; Jeff. Med. Coll., 1919	1919	1927
Halford, Jos. W., Lillington; Geo. Wash. Univ., 1904	1905	1905
Hicks, Isham Faison, Dunn; N. C. Med. Coll., 1902	1902	1904
Highsmith, Charles, Dunn (Hon.); Balt. Med. Coll., 1898	1898	1898
Holt, Wm. P., Erwin (Hon.); Jeff. Med. Coll., 1895	1895	1901

Holt, Wm. P., Jr., Erwin; Jeff. Med. Coll., 1926	1926	1927
McKay, Joseph F., Buies Creek (Hon.); S. C. Med. Coll., 1884	1885	1900
McLean, John W., Godwin; N. C. Med. Coll., 1902	1902	1906
Martin, J. F., Dunn; N. C. Med. Coll., 1905	1905	1918
Melvin, Wayman C., Linden; Univ. Coll. of Med., Richmond, 1900	1900	1905
Odell, J. W., Dunn; Med. Dept. Univ. of Ga., 1926	1928	1929
Parker, Paul G., Erwin; Med. Coll. of Va., 1916	1916	1917

HAYWOOD COUNTY SOCIETY

President: J. L. Reeves, Canton; Vanderbilt, 1913	1913	1917
Secretary: J. R. McCracken, Waynesville; N. C. Med. Coll., 1902	1902	1903
Abel, J. F., Waynesville (Hon.); Univ. of Balt., 1892	1892	1899
Davis, F. M., Canton; Vanderbilt Univ., 1894	1894	1904
Francis, Wm. G., Waynesville; Jeff. Med. Coll., 1915	1916	1925
Johnson, W. C., Canton; Tulane Univ. of La., 1912	1912	1917
Kirkpatrick, W. L., Waynesville; Univ. Vanderbilt, 1894	1894	1895
Pate, J. F., Canton; Med. Coll. of S. C., 1927	1927	1928
Russell, Jesse M., Canton; Univ. of Nashville, 1911	1911	1912
Stretcher, R. H., Waynesville; Med. Coll. of S. C., 1927	1926	1930
Stringfield, Samuel L., Waynesville; Jeff. Med. Coll., 1905	1905	1907
Stringfield, Thomas, Waynesville (Hon.); Vanderbilt Univ., 1898	1898	1899

HENDERSON COUNTY SOCIETY

President:	.....	.....
Secretary: L. R. Staton, Hendersonville; Univ. of Md., 1929	1929	1931
Allen, W. O., Hendersonville; Med. Coll. of S. C., 1925	1926	1926
Brown, J. S., Hendersonville (Hon.); Northwestern Univ., 1893	1894	1895
Cliff, B. F., Hendersonville; Geo. Washington Univ., 1908	1909	1915
Edgerton, Jas. L., Hendersonville (Hon.); Univ. of Md., 1877	1889*	1890
Fauntleroy, Jas. W., Zirconia; P. and S., Columbia	1900	1930
Greenwood, S. E., Fletcher; Tenn. Med. Coll., 1902	1903	1904
Russell, Lloyd P., Fletcher; Univ. of Nash., 1901	1902	1903
Sample, R. C., Hendersonville; Univ. of Pa., 1915	1915	1919
Sumner, Thos. W., Fletcher; Jefferson Med. Coll., 1910	1910	1911
Weddington, J. L., Hendersonville; Sou. Med. Coll., Atlanta, 1898	1925	1926
Woodcock, J. H., Hendersonville; Hos. College of Med., 1892	1894	1899

HERTFORD COUNTY SOCIETY

President: L. M. Futrell, Murfreesboro; Va. Med. Coll., 1914	1914	1918
Secretary: J. Gaddy Matheson, Ahoskie; Jeff., 1929	1929	1931
Mitchell, Paul H., Ahoskie; Univ. Coll. of Med., Richmond, 1907	1907	1908
Pollard, W. B., Winton; Univ. of Pa., 1899	1903	1905
Walker, L. K., Ahoskie; Univ. of Md., 1911	1911	1917
White, E., Harrelsville; Tulane, 1926	1926	.....

HOKE COUNTY SOCIETY

President: J. S. Hooker, Sanatorium; Emery Univ., 1923	1923	1924
Secretary: R. L. Murray, Raeford; Univ. of Md., 1923	1923	1925

Bittinger, S. M., Sanatorium; Geo. Wash. Univ., 1918	1924	1924
Brown, G. W., Raeford; Ky. School of Med., Louisville, 1898	1900	1900
Crowell, L. A., Jr., Sanatorium; Tulane Med. Dept., 1930	1930	1930
Easom, H. F., Sanatorium; Wash. Univ. Med. School	1929	1929
Howard, G. E., Sanatorium	.....	1931
McBrayer, L. B., Southern Pines (Hon.); Louisville Med. Coll., 1899	1899	1900
McBrayer, R., Watertown, N. Y.; Univ. of Pa., 1916	1916	1917
McCain, P. P., Sanatorium; Univ. of Md., and Coll. P. and S., Balt., 1911	1914	1914
Matheson, R. A., Raeford; Jeff. Med. Coll., 1926	1926	1928
Thomas, C. D., Sanatorium; Univ. of Indiana, 1926	1930	1930
Thornton, W. F., Sanatorium; Bayler Univ., 1927	1927	1931
Williams, J. H., Sanatorium; Jeff. Med. Coll., 1920	1920	1922

HYDE COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Harris, Arthur Graham, Fairfield; Univ. of the South, 1905	1905	1908

IREDELL-ALEXANDER COUNTIES SOCIETY

President: Ross S. McElwee, Statesville; Univ. of Md., 1909	1909	1910
Secretary: Roy C. Tatum, Statesville; Jeff. Med., 1919	1919	1920
Adams, M. R., Statesville (Hon.); Univ. of Md., 1878	1884	1884
Alexander, Jas. M., Statesville; Georgetown Univ., 1925	1926	1927
Anderson, Thos. Eli., Statesville (Hon.); Jeff. Med. Coll., 1878	1879	1879
Asbill, David S., Statesville; Grad. Med. Coll. of S. C., 1926	1929	1930
Ashburn, C. W., Statesville; Wash. Univ., 1927	1927	1928
Bell, A. E., Mooresville; Univ. of Md., and Coll. of P. and S., 1897	1897	1904
Crouch, T. D., Stony Point; N. C. Med. Coll., 1909, and Univ. of Md., 1910	1909	1915
Davis, Jas. W., Statesville; Univ. of Pa., 1913	1913	1915
Easley, P. S., Statesville; N. C. Med. Coll., 1907; Jeff. Med. Coll., 1908	1907	1913
Gilmore, W. D., care of: State Sanatorium, Howell, Mich.; Univ. of N. C., 1903	1903	1904
Goode, T. V., Statesville; Univ. Coll. of Med., Va., 1912	1912	1916
Herman, Chas. B., Statesville; Jeff. Med. Coll., 1923	1923	1925
Jurney, Peter Claywell, Turnersburg; Med. Coll. of Va., 1901	1901	1904
Leeper, Donald H., Hiddenite; N. C. Med. Coll., 1906	1906	1913
Little, E. E., Statesville, Rt. 6; N. C. Med. Coll., 1912	1912	1915
Little, Lonnie M., Statesville; Jeff. Med. Coll., 1925	1925	1927
Long, H. F., Statesville (Hon.); Balt. Med. Coll., 1891	1892	1893
McLaughlin, J. E., Statesville (Hon.); Univ. of Md., 1886	1886	1896
McLelland, W. D., Mooresville; Jeff. Med. Coll., 1913	1913	1917
Mitchell, G. T., Jennings; Jeff. Med. Coll., 1927	1927	1928
Myers, D. L., Jennings; Tulane, 1925	1928	1929
Nicholson, C. R., Statesville; N. C. Med. Coll., 1912	1912	1916
Poston, J. Lewis, Statesville; Jeff. Med. Coll., 1922	1923	1924

Pressly, Jas. L., Statesville; Jeff. Med. Coll., 1925	1925	1928
Price, H. L., Taylorsville; N. C. Med. Coll., 1914	1914	1930
Rhyne, S. A., Statesville; N. C. Med. Coll., 1915	1915	1920
Sharpe, Frank L., Statesville; Univ. of N. C., 1904	1904	1905
Shaw, L. R., Statesville; Med. Coll. of Va., 1930	1930	1931
Sherrill, C. L., Statesville; N. C. Med. Coll., 1914	1914	1915
Sloan, A. B., Mooresville; Med. Coll. of Va., 1924	1924	1926
Talley, J. S., Troutman; Univ. of N. C., 1909	1910	1917
Taylor, G. W., Mooresville; N. C. Med. Coll., 1906	1906	1917
Templeton, J. Y., Mooresville; Jeff. Med. Coll., 1912	1913	1927
Thurston, Asa, Taylorsville; Univ. of Md., 1909	1909	1914
Trivette, W. A., Hamptonville; Med. Coll. of Va., 1916	1916	1925
Waddell, Robert L., Mooresville; Med. Coll. of Va., 1929	1929	1930

JACKSON COUNTY SOCIETY

President:		
Secretary:		
Candler, Chas. Z., Sylva; P. and S., Atlanta, 1901	1901	1904
Van Epp, Owen B., Cashiers; Cleveland Pulte Med. Coll., 1900	1923	1925
Wilkes, Grover C., Sylva; N. C., Med. Coll., 1916	1916	1920

JOHNSTON COUNTY SOCIETY

President: H. H. Utley, Benson; Balt. Med. Coll., 1906	1906	1910
Secretary: Edwin N. Booker, Selma; Grad. Univ. of Va., 1925	1925	1930
Aycock, F. M., Princeton; Med. Coll. of Va., 1921	1921	1926
Coleman, G. S., Kenly; Med. Coll. of Va., 1907	1907	1909
Davidian, Vartan A., Smithfield; Univ. Kiev, Russia	1929	1930
Duncan, S. A., Benson; Tulane Univ., 1924	1924	1926
Fitzgerald, J. Herbert, Smithfield; Jeff. Med. Coll., 1920	1920	1922
Grady, Jas. C., Kenly (Hon.); Balt. Univ. School of Med., 1887	1887	1890
Hinnant, Milford, Micro; Univ. of Md., 1912	1912	1913
Hocutt, Battle A., Clayton; Univ. of N. C., School of Med., 1906	1906	1908
Hooks, Thel., Smithfield; Med. Coll. of Va., 1901	1901	1903
McLemore, George A., Smithfield; Univ. of N. C., 1906	1906	1908
Massey, C. C., Smithfield; Jeff. Med. Coll., 1923	1923	1925
Mayerberg, I. W., Selma; Jeff. Med. Coll., 1907	1907	1909
Orr, W. J. B., Smithfield; Univ. of Md., 1920	1920	1922
Parker, G. E., Benson (Hon.); Coll. of P. and S., Balt., 1886	1889*	1904
Person, J. B., Selma (Hon.); Med. Coll. of Va., 1897	1897	1900
Rose, A. H., Smithfield; Jeff. Med. Coll., 1906	1906	1907
Stanley, John H., Four Oaks; Univ. of N. C., 1904	1904	1906
Stevens, R. S., Princeton; Univ. of N. C., 1905	1905	1907
Surles, J. B., Four Oaks; Jeff. Med. Coll., 1909	1909	1919
Vick, Geo. D., Selma; Jeff. Med. Coll., 1906	1906	1907
Wharton, L. D., Smithfield (Hon.); Tulane Univ., 1893	1893	1894
Wilson, W. G., Smithfield; Jeff. Med. Coll., 1921	1921	1924

JONES COUNTY SOCIETY

President: A. F. Hammond, Pollocksville; Univ. Coll. of Med., Va., 1903	1903	1914
Secretary: B. W. Page, Trenton; Tulane Univ., 1909	1909	1919
Bell, J. C., Maysville; P. and S., Balt., 1910	1915	1922

LEE COUNTY SOCIETY

President: I. Hayden Lutterloh, Jr., Sanford; Jeff. Med. Coll., 1921	1921	1922
Secretary: Floyd L. Knight, Sanford; Univ. of Va., 1924	1925	1926
Blue, Waylon, Jonesboro; Med. Coll. of Va., 1925	1925	1926
Foster, J. F., Sanford; N. C. Med. Coll., 1916	1916	1919
Lutterloh, I. H., Sanford; Vanderbilt Univ., 1890	1894*	1922
McIver, Lynn Sanford; Kentucky Univ., 1901	1902	1902
Matthews, M. L., Sanford; Univ. of N. C., 1903	1903	1904
O'Briant, A. L., Sanford; Jeff. Med. Coll., 1920	1920	1922
Scott, Charles L., Sanford; Univ. of Md., 1897	1899	1916
Sowers, Roy G., Jonesboro; Univ. of Md., 1923	1923	1924
Watson, Leon, Broadway; N. C. Med. Coll., 1900	1900	1904

LENOIR COUNTY SOCIETY

President: A. L. Hyatt, Kinston; Univ. of Md., 1910	1910	1921
Secretary: B. C. West, Kinston; Univ. of Pa., 1924	1924	1926
Adams, L. C., La Grange; N. C. Med. Coll., 1903	1903	1921
Carr, M. L., La Grange; Med. Coll. of Va., 1916	1916	1920
Dixon, Wm. H., Kinston; Med. Coll. of Va., 1901	1901	1901
Lee, Mike, Kinston; Tulane Univ., 1926	1926	1927
McCuiston, A. M., Kinston; N. C. Med. Coll., 1911	1911	1917
Mangum, C. P., Kinston; Jeff. Med. Coll., 1918	1918	1920
Moseley, Z. V., Kinston; Va. Univ. Coll. of Med., 1913	1913	1914
Parrott, Jas. M., Kinston (Hon.); Tulane Univ., 1895	1895	1896
Parrott, M. C., Kinston; Tulane Univ., 1917	1917	1919
Parrott, Wm. T., Kinston (Hon.); Tulane Univ., 1899	1899	1901
Peery, Vance P., Kinston; Med. Coll. of Va., 1916	1917	1917
Sabiston, Frank, Kinston; Univ. of Md., 1918	1919	1926
Tyndall, R. G., Kinston; Univ. of Pa., 1928	1928	1931
West, C. F., Kinston; Univ. of Pa., 1917	1917	1920
Whitaker, Paul F., Kinston; Med. Coll. of Va., 1922	1922	1924

LINCOLN COUNTY SOCIETY

President: W. G. Bandy, Lincolnton; Vanderbilt Univ., 1908	1912	1916
Secretary: W. V. Costner, Lincolnton; Jeff. Med. Coll., 1924	1925	1927
Cornwell, A. M., Lincolnton; Geo. Wash. Univ., 1927	1927	1928
Crowell, L. A., Lincolnton (Hon.); Balt. Med. Coll., 1892	1892	1898
Edwards, F. D., Lawndale, R. 1; Atlanta Med., 1914	1916	1919
Elliot, W. F., Lincolnton; Pa. Medico-Chir. Coll., 1916	1916	1917
Gamble, J. F., Lincolnton; Univ. of Tenn., 1903	1915	1919
Gamble, J. R., Lincolnton; Univ. of Tenn., 1911	1911	1912

Hoover, C. H., Crouse; Chattanooga Med. Coll., 1900; Balt. Med. Coll., 1903	1903	1903
Jacocks, W. P., New York City; Univ. of Pa., 1911	1911	1913

McDOWELL COUNTY SOCIETY

President: J. F. Miller, Marion; Med. Chi. Phila., 1906	1915	1919
Secretary: R. B. Butt, Marion; Emory Univ., Atlanta, 1920	1920	1921
Ashworth, B. L., Marion (Hon.); P. and S., Balt., 1892	1893	1900
Bingham, George P., Marion; Hospital Med. Coll., Atlanta Eclectric, 1911	1913	1924
Johnson, John B., Old Fort; Univ. Louisville Med. Dept., 1905	1914	1914
Jonas, John F., Marion; Balt. Med. Coll., 1903	1903	1903
Justice, Gaston B., Marion; P. and S., Atlanta, 1907	1907	1907
Kirby, Guy S., Marion; Univ. Coll. of Va., 1897	1896	1903
McIntosh, D. M., Old Fort; Med. Coll. of Va., 1904	1907	1909
Robinson, W. A., Old Fort; Med. Coll. of Va., 1900	1903	.....

MACON-CLAY COUNTIES SOCIETY

President:	.....	.....
Secretary: W. A. Rogers	.....	.....
Angel, F., Franklin; Jeff. Med. Coll., 1918	1923	1924
Killian, Frank M., c/o Nantahala Power & Light Co., Nantahala, N. C.; Univ. of Louisville, Ky., 1929	1929	1930
Lyle, S. H., Franklin (Hon.); Univ. of Nashville, 1883	1881	1882
Rogers, W. A., Franklin (Hon.); Univ. of Nashville, 1898	1898	1898

MADISON COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Kimberly, David, Jr., Hot Springs; Univ. of Cinn., 1924	1926	1927
Robinson, Willard F., Mars Hill; Vanderbilt Univ., 1896	1903	1904
Sams, W. A., Marshall; Lincoln Memo., 1911	1919	1920

MARTIN COUNTY SOCIETY

President: James S. Rhodes, Williamston; Med. Coll. of Va., 1906	1906	1907
Secretary:	.....	.....
Nelson, Robert J., Robersonville (Hon.); Louisville Med. Coll., 1890	1890	1893
Pittman, E. E., Oak City; Med. Coll. of Va., 1919	1919	1920
Saunders, Jos. H., Williamston; Univ. Coll. of Med., Va., 1905	1905	1909
Smithwick, James E., Jamesville; Univ. Coll. of Med., 1897	1897	1904
Ward, Jesse E., Robersonville; Univ. of Md., 1904	1904	1905
Ward, Vernon Albert, Robersonville; Jeff. Med. Coll., 1908	1908	1914

MECKLENBURG COUNTY SOCIETY

President: J. M. Northington, Charlotte; Med. Coll. of Va., 1905	1909	1909
Secretary: R. B. McKnight, Charlotte; Univ. of Pa., 1920	1920	1928
Abernathy, H. N., Charlotte (Hon.); Louisville Med. Coll., 1894	1894	1899

Alexander, Jas. R., Charlotte (Hon.); Univ. of Md., 1894	1894	1899
Alexander, M. Janet, Montgomery, India; Women's Med. Coll., Pa., 1917	1917	1918
Allan, William, Charlotte; P. and S., Balt., 1906	1906	1914
Ashe, J. R., Charlotte; Columbia Univ., 1911	1915	1915
Austin, D. R., Charlotte; Jeff. Med. Coll., 1917	1917	1918
Austin, Frederick De Costa, Charlotte; N. C., Med. Coll., 1907	1907	1908
Barret, H. P., Charlotte; Univ. of Louisville, 1908	1917	1919
Barron, A. A., Charlotte; Vanderbilt Univ., 1909	1910	1910
Black, Geo. Wm., Pineville; Med. Coll. of Va., 1924	1924	1925
Blair, Andrew, Charlotte; U. of Pa., 1924	1925	1926
Blalock, B. K., Charlotte; Univ. of Md., 1913	1913	1917
Bost, T. C., Charlotte; Geo. Washington Univ., 1915	1920	1921
Bradford, W. Z., Long Island Coll. Hospital, Brooklyn, N. Y., Univ. of Pa., 1928	.....	1930
Brenizer, A. G., Jr., Charlotte; Johns Hopkins, 1908, and Univ. of Heidelberg	1911	1911
Britt, C. S., Charlotte; Emory Univ., 1920	1925	1926
Craven, Thomas, Huntersville; Jeff. Med. Coll., 1917	1917	1918
Craven, W. W., Charlotte; Univ. of Md., 1903	1904	1904
Crowell, Andrew J., Charlotte (Hon.); Univ. of Md., 1893	1892	1894
Davidson, John E. S., Charlotte (Hon.); Univ. of Md., 1894	1898	1898
Davis, Stephen W., 501 Professional Bldg., Charlotte, N. C.; Univ. of Pa. Med. School, 1927	1927	1929
De Armon, J. McC., 4 McKinnon Bldg., Charlotte (Hon.); Univ. of Md., 1886	1886	1887
Donnelly, J., Huntersville; Univ. of N. C., 1905	1905	1918
Elliott, J. A., Charlotte; Univ. of Mich., 1914	1919	1920
Faison, Yates W., Charlotte; Harvard Univ., 1910	1910	1912
Ferguson, R. T., Charlotte; Univ. Coll. of Va., 1906	1909	1909
Fetner, L. M., Charlotte; N. C. Med. Coll., 1914	1914	1915
Gage, L. G., Charlotte; Univ. of Va., 1915	1921	1922
Gallant, Robert M., Charlotte; N. C. Med. Coll., 1915	1915	1916
Gaul, John Stuart, Charlotte; Medico-Chir., Phila., 1913	1922	1923
Gibbon, James, Charlotte; Jeff. Med. Coll., 1918	1920	1921
Gibbon, Robert L., Charlotte (Hon.); Jeff. Med. Coll., 1887	1887	1888
Hand, Edgar H., Charlotte; N. C. Med. Coll., 1907	1907	1913
Hart, V. K., Charlotte; Univ. of Pa., 1921	1924	1925
Henderson, S. McD., Charlotte; Univ. of Md., 1894	1894	1904
Hipp, Edw. R., Charlotte; Univ. of Va., 1918	1920	1921
Holton, Thos. J., Charlotte; Emory Univ., 1909	1925	1926
Houser, O. J., Charlotte; N. C. Med. Coll., 1914	1914	1916
Hovis, L. W., Charlotte; N. C. Med. Coll., 1904	1904	1906
Hunter, L. W., Charlotte, Route 1 (Hon.); Bellevue Hosp., N. Y., 1875	1880	1880
Hunter, M. C., Huntersville; Coll. of P. and S., Balt., 1882	1882	1882
Hunter, Myers, Charlotte; Georgetown Univ., 1905	1906	1908
Irwin, Hammer C., Pocatella, Idaho; Univ. of Md., 1905	1908	1916
Irwin, J. R., Charlotte (Hon.); Univ. of Md., 1879	1882	1882
Johnston, J. G., Charlotte; Med. Dept. Vanderbilt Univ., 1899	1913	1916

Jones, D. C., Charlotte; Univ. of Pa., 1927	1930	1930
Kelleher, L. B., Charlotte; Med. Coll. Va., 1926	1927	1929
Kelly, Luther W., Charlotte; Univ. of Va., 1924	1926	1927
Kennedy, John P., Charlotte; Jeff. Med. Coll., 1915	1915	1920
King, Parks M., Charlotte; Bellevue Med. Coll., 1902	1902	1904
Lafferty, Robert H., Charlotte; N. C. Med. Coll., 1906	1906	1908
Leinbach, Robt. F., Charlotte; Univ. of Pa., 1907	1907	1910
MacConnell, John W., Davidson; Univ. of Md., 1907	1908	1909
McCoy, Thos. M., Charlotte; N. C. Med. Coll., 1905	1906	1910
McFadden, R. H., Charlotte; S. C. Med. Coll., 1912	1927	1927
McGregor, Geo. D., Charlotte; Univ. of Va., 1925	1927	1928
McKay, Hamilton W., Charlotte; N. C. Med. Coll., 1909; Jeff. Med. Coll., 1910	1911	1913
McKay, Robert W., Charlotte; Johns Hopkins, 1923	1928	1928
McLaughlin, Calvin S., Charlotte; Univ. of Md., 1896	1896	1903
McLean, E. K., Charlotte; Univ. of Texas, 1919	1927	1928
McLeskey, J. H., Charlotte; Univ. of Ga., 1909	1927	1928
McPhail, L. D., Charlotte; Univ. of Md., 1900	1900	1902
McPhaul, W. A., Charlotte; Univ. of Nashville, 1904	1905	1907
Martin, Wm. F., Charlotte; Univ. of Md., 1920	1920	1923
Martin, W. J., Richmond, Va.; Univ. of Va., 1890	1891	1919
Matheson, James P., Charlotte; Univ. of Md., 1905	1902	1907
Mathews, Vann M., Charlotte; Univ. of Pa., 1918	1918	1921
Misenheimer, Thos. M., Charlotte; S. C., Med. Coll., 1925	1925	1927
Moore, Alexander W., Charlotte; Univ. of Va., 1901; Univ. and Bellevue Hosp. Med. Coll., 1902	1912	1913
Moore, Oren, Charlotte; N. C. Med. Coll., 1911	1911	1912
Moore, R. A., Charlotte; Univ. of Pa., 1923	1924	1925
Motley, Fred Elliot, Charlotte; Univ. of Mich., 1922	1926	1927
Munroe, H. Stokes, Charlotte; N. C. Med. Coll., 1902; Jeff. Med., 1903	1902	1904
Munroe, J. P., Charlotte (Hon.); Univ. of Va., 1885	1886	1890
Myers, Alonzo, Charlotte; N. C. Med. Coll., 1911; Bellevue Hosp. Med. Coll., 1916	1911	1920
Myers, John Q., Charlotte; N. C. Med. Coll., 1904	1904	1904
Nalle, B. C., Charlotte; Univ. of Va., 1903	1905	1905
Nance, C. L., Charlotte; N. C. Med. Coll., 1919	1921	1922
Neblett, H. C., Charlotte; Med. Coll. of Va., 1914	1921	1929
Newell, Leon B., Charlotte; Univ. of N. C., 1905	1905	1908
Newton, Howard L., Charlotte; Northwestern Univ., 1921	1923	1924
Nisbet, D. Heath, Charlotte; Harvard Med. Dept., 1917	1917	1920
Nisbet, Walter O., Charlotte (Hon.); Med. Coll. of S. C., 1889	1889	1889
Nowlin, Preston, Charlotte; Univ. of Va., 1924	.....	1930
Patterson, Reid, Charlotte; N. C. Med. Coll., 1912	1912	1913
Peeler, Clarence N., Charlotte; N. C. Med. Coll., 1906	1906	1908
Perry, Leora, Charlotte; Med. Coll. of S. C., 1926	1929	1930
Petteway, George H., Charlotte; N. C. Med. Coll., 1913	1913	1914
Phillips, C. C., Charlotte; N. C. Med. Coll., 1912	1912	1917
Pressly, Geo. W., Charlotte (Hon.); Jeff. Med. Coll., 1892	1895	1896

Query, Richard Z., Charlotte, Route 3; Univ. Coll. of Med., Richmond, 1907	1907	1908
Rankin, Watson S., Charlotte (Hon.); Univ. of Md., 1901	1901	1901
Ranson, J. Lester, Charlotte; N. C. Med. Coll., 1911	1911	1912
Ray, F. L., Charlotte; Univ. of Va., 1919	1919	1922
Reid, Thomas N., Matthews; N. Y. Univ. Med. Coll., 1891	1891	1904
Ross, Otho B., Charlotte; Univ. of Pa., 1909	1909	1912
Ross, Thos. W., Charlotte; Jeff. Med. Coll., 1927	1927	1930
Sasser, T. J., Charlotte; Univ. Ga. Med. Dept., 1926	1929	1929
Scruggs, W. Marvin, Charlotte; Univ. of Pa., 1914	1914	1920
Shirley, H. C., Charlotte; Johns Hopkins, 1918	1921	1922
Shull, J. Rush, Charlotte; Univ. of Pa., 1910	1910	1913
Sloan, H. L., Charlotte; Univ. of Pa., 1911	1913	1914
Smith, F. C., Charlotte; Jeff. Med., 1921	1921	1925
Sparrow, Thos. De L., Charlotte; Univ. of Pa., 1920	1920	1923
Squires, Claude B., Charlotte; Jeff. Med. Coll., 1919	1919	1921
Strong, Charles M., Charlotte (Hon.); Univ. of Md., 1889	1889	1898
Strong, Wm. M., Charlotte; N. C. Med. Coll., 1904	1904	1905
Sullivan, Claude H., Charlotte; Emory Univ., 1917	1924	1925
Taylor, H. C., Charlotte, Chadwick Sta.; Tenn. Med., 1886	1910	1915
Thompson, S. R., Charlotte; N. C. Med. Coll., 1914	1914	1915
Todd, L. C., Charlotte; Univ. of Mich., 1918	1920	1920
Townsend, M. L., Washington, D. C.; Indiana Med. Coll., 1906	1912	1913
Tucker, John H., Charlotte; Univ. of Va., 1889	1901	1911
Tydeman, F. W. L., St. Louis, Mo.; N. C. Med. Coll., 1912	1912	1918
Wakefield, Harry A., Charlotte; N. C. Med. Coll., 1908	1908	1911
Wannamaker, Edward J., Jr., Charlotte; Univ. of Pa., 1921	1924	1924
Whisnant, Albert M., Charlotte (Hon.); P. and S., Balt., 1893	1893	1899
White, Thomas Preston, Charlotte; Univ. of Pa., 1922	1924	1925
Whitley, Ayer, Matthews; Balt. Med. Coll., 1908	1908	1919
Wingate, G. C., Charlotte; N. C. Med. Coll., 1914	1915	1919
Wishart, Wm. E., Charlotte; N. C. Med. Coll., 1911	1911	1911
Withers, J. J., Davidson; Jeff., 1909	1909	1930
Woodruff, Julian S., Charlotte; Univ. of Md., 1920	1920	1923

MITCHELL-WATAUGA COUNTIES SOCIETY

President: C. F. Lambert, Spruce Pine; Jeff. Med. Coll., 1921	1921	1923
Secretary: C. A. Peterson, Spruce Pine; N. C. Med. Coll., 1907	1907	1908
Hagaman, J. B., Boone, 1915	1915	1915
Hodges, Joseph M., Boone; Balt. Med. Coll., 1904	1906	1914
Perry, H. B., Boone; N. C. Med. Coll., 1905	1905	1922

MONTGOMERY COUNTY SOCIETY

President: N. G. Nicholson, Jr., Mt. Gilead; N. C. Med. Coll., 1917	1917	1920
Secretary: Charles Daligny, Troy (Hon.); Univ. of Paris, 1878	1889	1891
Coppedge, N. P., Candor		1910
Griffin, H. L., Star; Med. Coll. of Va., 1926	1926	1928
Harris, W. J., Troy; Med. Coll. of Va., 1925	1926	1927

Ingram, Charles B., Mt. Gilead (Hon.); Jeff. Med. Coll., 1886	1886	1892
McMillan, J. M., Candor; P. and S., Atlanta, 1909	1909	1911
Rankin, Pressly R., Mt. Gilead; N. C. Med. Coll., 1910	1910	1912
Shamburger, John B., Star (Hon.); Univ. of Md., 1890	1890	1892
Thompson, Alexander Frank, Troy; Med. Coll. of Indiana, 1895	1895	1904

MOORE COUNTY SOCIETY

President: J. S. Milliken, Southern Pines; Jeff. Med. Coll., 1915	1915	1916
Secretary: R. G. Rosser, Vass; N. C. Med. Coll., 1909	1909	1917
Averitt, H. O., Cameron; Emory Univ., 1929	1929	1931
Blair, A. McNiel, Southern Pines; Niagara Univ., 1897	1904	1906
Blue, A. McN., Carthage; Tulane Univ., 1915	1916	1917
Bowman, H. E., Aberdeen; N. C. Med. Coll., 1904	1904	1919
Davis, J. Franklin, High Falls; Med. Coll. of Va., 1912	1912	1914
Dickie, J. W., Southern Pines; Jeff. Med. Coll., 1918	1920	1921
Durham, C. W., Jackson Springs; Geo. Wash. Univ., 1927	1928	1929
Edwards, E. C., Aberdeen; Vanderbilt, 1924	1928	1929
Felton, R. L., Jr.; Univ. of Pa.	1927	1929
Grier, Charles T., Shelter Island Heights, N. Y.; N. C. Med. Coll., 1910	1912	1913
McDuffie, W. N., Hemp; Emory Univ. Sch. of Med., Atlanta, 1916	1920	1921
McLeod, A. H., Aberdeen; Balt. Med. Coll., 1896	1896	1904
McLeod, W. G., Southern Pines; Baylor Univ., 1921	1926	1927
Marr, M. W., Pinehurst; Tufts Coll. Med. Sch., Boston, 1907	1909	1915
Monroe, C. R., Pinehurst; Univ. of Md., 1924	1925	1928
Mudgett, W. C., Southern Pines; Maryland Med. Coll., 1903	1908	1911
Shields, Henry B., Carthage (Hon.); Atlanta Med. Coll., 1882	1887	1901
Street, M. E., Glendon (Hon.); P. and S., Balt., 1893	1893	1902
Symington, John, Carthage; Univ. of Md., 1902; London Sch. of Hygiene and Tropical Med., 1926	1927	1928

NEW HANOVER COUNTY SOCIETY

President: J. T. Hoggard, Wilmington; Univ. Med. Coll., Rich., 1906	1906	1922
Secretary: A. McR. Crouch, Wilmington; Jeff. Med. Coll., 1916	1916	1918
Barefoot, Graham B., Wilmington; Jeff. Med. Coll., 1923	1923	1924
Bellamy, Robert H., Wilmington; Jeff. Med. Coll., 1902	1902	1902
Bullock, Ernest S., Wilmington; Univ. of Md., 1911	1911	1911
Coddington, H. A., Wilmington; Univ. of Md., 1911	1915	1917
Cranmer, J. B., Wilmington; Univ. of N. C., 1905	1905	1907
Davis, H. C., Wilmington; Grad. Univ. of Md., 1927	1929	1930
Elliott, A. H., Wilmington; Jeff. Med. Coll., 1919	1919	1921
Evans, J. E., Wilmington; Univ. of Md., 1916	1916	1916
Farthing, L. E., Wilmington; Univ. of N. C., 1906	1906	1913
Freeman, J. D., Wilmington; Med. Coll. of Va., 1918	1921	1922

Galloway, Walter Curtis, Wilmington (Hon.); Washington Univ., 1874	1880	1880
Green, Thomas M., Wilmington; Univ. of Md., 1901	1901	1904
Hall, James S., Wilmington; Univ. of S. Calif., 1900	1921	1924
Hamilton, John H., Wilmington; Med. Sch. of Harvard, 1916	1926	1926
Harriss, Andrew H., Wilmington (Hon.); Medico-Chir., Phila., 1893	1892	1894
Hooper, Joseph W., Wilmington; Univ. of Md., 1909	1912	1919
Jewett, Robert D., Wilmington (Hon.); Univ. of Va., 1888	1890	1890
Johnson, Geo. W., Wilmington; Univ. of Pa., 1920	1920	1921
Koonce, S. Everett, Wilmington (Hon.); P. and S., Balt., 1896	1896	1900
McMillan, W. D., Wilmington (Hon.); Univ. of Md., 1869	1889*	1892
Mebane, W. C., Wilmington; N. C. Med. Coll., 1905	1905	1916
Moore, W. Houston, Wilmington; Jeff. Med. Coll., 1910	1910	1911
Murchison, D. R., Wilmington; Johns Hopkins, 1916	1922	1923
Murphy, John G., Wilmington; Univ. of Louisville, 1903	1903	1905
Nesbitt, Charles T., Wilmington; Baltimore Med. Coll., 1893	1907	1908
Powers, Frank P., Wilmington	.....	.....
Robertson, James F., Wilmington; Univ. of Pa., 1913	1913	1916
Rodman, R. B., Wilmington; Med. Coll. of S. C., 1928	1928	1930
Rourk, M. H., Wilmington; Univ. Minn., 1929	1930	1931
Schonwald, John T., Wilmington (Hon.); Long Island Coll. Hosp., 1879	1880	1881
Sidbury, J. B., Wilmington; Columbia Univ., N. Y., 1912	1915	1916
Sloan, D. B., Wilmington; Univ. of Pa., 1914	1914	1920
Slocum, R. B., Wilmington; Johns Hopkins, 1905	1907	1907
Smith, Slade A., Wilmington; N. C. Med. Coll., 1907	1907	1921
Wessell, John C., Wilmington (Hon.); Univ. of Md., 1900	1900	1900

NORTHAMPTON COUNTY SOCIETY

Fleetwood, Jos. A., Conway; Tulane, 1921	1921	1923
Hodge, A. R., Severn; Med. Coll. of Va., 1925	1925	1926
Lewis, H. W., Jackson (Hon.); Univ. of N. Y., 1887	1889*	1887
Vaughn, J. C., Rich Square; Med. Coll. of Va., 1915	1915	1916

ONSLOW COUNTY SOCIETY

President: J. P. Corbett, Swansboro; Wash. Univ. School of Med., 1928	1928	1930
Secretary: Lorenzo D. Bryan, Sneads Ferry; Tulane, 1910	1910	1911
Cox, E. L., Jacksonville (Hon.); Univ. of Md., 1889	1889	1892
Henderson, John P., Jacksonville; Va. Med. Coll., 1918	1919	1921

PAMLICO COUNTY SOCIETY

President: D. A. Dees, Bayboro; Balt. Med. Coll., 1903	1903	1905
Secretary: J. J. Purdy, Oriental; Med. Coll. of Va., 1900	1914	1915
Daniels, O. C., Oriental; Med. Coll. of Va., 1903	1903	1916
McCotter, St. Elmo, Bayboro; P. and S., Atlanta, 1908	1908	1909

PASQUOTANK-CAMDEN-DARE COUNTIES SOCIETY

President:		
Secretary: Howard Combs, Elizabeth City; Jeff. Med., 1918	1918	1920
Bulla, M. S., Elizabeth City; Miami Med. Coll., Cinn., 1905	1921	1921
Fearing, Isaiah, Elizabeth City; P. and S., Balt., 1896	1896	1904
Hoyle, Hughes B., Manteo; N. C. Med. Coll., 1896	1896	1904
Johnston, W. W., Manteo; N. C. Med. Coll., 1913	1913	1920
Kendrick, R. L., Elizabeth City; Univ. of Va., 1913	1913	1915
Lister, E. W., Elizabeth City; Med. Coll. of Va., 1896	1896	1916
Peters, W. A., Elizabeth City; Med. Coll. of Va., 1915	1915	1916
Sawyer, W. W., Elizabeth City; Univ. of Md., 1903	1903	1904
Stevens, W. L., Shiloh; Univ. of Va., 1912	1912	1914
Walker, H. D., Elizabeth City (Hon.); Univ. of Md., 1902	1902	1902
Ward, I. A., Elizabeth City; Univ. of N. C., 1907	1907	1915
White, W. H. C., Elizabeth City; Univ. of Va., 1922	1929	1929
Williams, Claude B., Elizabeth City; Univ. Coll. of Med., Richmond, 1903	1903	1907

PENDER COUNTY SOCIETY

President:		
Secretary:		
Taylor, W. I., Burgaw; N. C. Med. Coll., 1902	1904	1905

PERSON COUNTY SOCIETY

President: B. A. Thaxton, Roxboro; Jeff. Med. Coll., 1914	1914	1916
Secretary: H. M. Beam, Roxboro; Columbia Univ., 1918	1918	1919
Gentry, Geo. W., Roxboro; Univ. of N. C., 1910	1910	1911
Love, Bedford E., Roxboro; Univ. of Md., 1904	1904	1905
Merritt, John H., Woodsdale, Rt. 1; Univ. of N. C., 1906	1907	1908
Nichols, Austin F., Roxboro; Univ. of N. C., 1908	1908	1909

PITT COUNTY SOCIETY

President: Joseph Smith, Greenville; Med. Coll. of Va., 1914	1916	1920
Secretary: W. M. B. Brown, Greenville; Med. Coll. of Va., 1929	1929	1931
Barrett, J. M., Greenville; Univ. of Pa., 1926	1926	1927
Basnight, Thos. G., Stokes; Univ. of Md., 1904	1905	1907
Beasley, E. B., Fountain; Univ. of Pa. School of Med., 1911	1911	1915
Bonner, H. M., Morehead City; Med. Coll. of Va., 1897	1897	1918
Cox, B. T., Winterville; Univ. of Md., 1888	1888	1890
Crisp, S. M., Greenville; Univ. of Pa., 1923	1923	1925
Dixon, G. G., Ayden; Med. Coll. of Va., 1915	1915	1917
Dixon, Joseph, Greenville; Med. Coll. of Va., 1894	1893	1895
Drewry, W. H., Grimesland; Coll. of Va., 1926	1926	1926
Frizzelle, M. T., Ayden; Univ. Coll. of Med., Richmond, 1907	1907	1909
Futrelle, W. E., Greenville; Jeff. Med. Coll., 1921	1921	1923
Garrenton, Cecil, Bethel; Med. Coll. of Va., 1908	1908	1915
Green, J. C., Greenville; Med. Coll. of Va., 1900	1900	1915
McGeachy, R. S., Kinston (Hon.); Bellevue Hosp., 1894	1894	1895
Morrill, D. S., Farmville; Balt. Med. Coll., 1897	1897	1903

Nobles, Jos. E., Greenville; Jeff. Med. Coll., 1899	1899	1902
Pace, K. B., Greenville; Jeff. Med. Coll., 1914	1914	1920
Skinner, Louis Colton, Greenville; Univ. of Md., 1901	1901	1903
Smith, R. C., Grifton; Jeff. Med. Coll., 1923	1923	1926
Tyson, J. J., Ayden; Med. Coll. of Va., 1928	1928	1930
Watson, Thomas M., Greenville; Tulane Univ., 1919	1919	1920
Whitfield, Wm. Cobb, Grifton (Hon.); Univ. of Md., 1884	1884	1884
Winstead, J. L., Greenville; Med. School of Univ. of Md., 1925	1925	.....
Wooten, W. I., Greenville; Jeff. Med., 1920	1920	1920

POLK COUNTY SOCIETY

President: Wm. Earle Grady, Tryon (Hon.); Univ. of Md., and P. and S., Balt., 1894	1895	1899
Secretary: E. McQueen Salley, Saluda; Univ. of Md., 1905	1905	1908
Jervey, A. J., Tryon; Med. Coll. of S. C., 1905	1923	1925
Palmer, M. C., Tryon; Med. Coll. of S. C., 1910	1911	1914
Smith, D. L., Saluda and Spartanburg, S. C., S. C. Med. Coll., 1903	1926	1927

RANDOLPH COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Hayworth, C. A., Asheboro; Univ. of Md., 1913	1913	1914
Hubbard, Charles C., Farmer (Hon.); Jeff. Med. Coll., 1888	1890	1900
Johnson, J. R., Ramseur; Med. Coll. of Va., 1927	1927	1929
Lambert, W. L., Asheboro; Jeff. Med. Coll., 1921	1921	1923
Redding, Alex. H., Cedar Falls (Hon.); Coll. of P. and S., Balt., 1887	1889*	1900
Sumner, G. H., Asheboro; Tulane Univ., 1923	1923	1924
Tate, C. S., Ramseur; Balt. Med. Coll., 1893	1896	1914

RICHMOND COUNTY SOCIETY

President: T. B. Henry, Rockingham; Columbia Univ. Coll. P. and S., N. Y., 1917	1920	1921
Secretary: A. C. Everett, Rockingham; Univ. of Md., 1897	1897	1903
Bristow, C. O., Rockingham; Jeff. Med. Coll., 1918	1920	1921
Caddell, G. C., Hoffman; N. C. Med. Coll., 1912	1912	1930
Garrett, F. B., Rockingham; N. C. Med. Coll., 1912	1912	1914
Hatcher, M. A., Hamlet; Med. Coll. of Va., 1918	1920	1921
Howell, W. L., Ellerbe; N. C. Med. Coll., 1910	1910	1911
James, W. D., Hamlet; Jeff. Med. Coll., 1908	1908	1908
Kinsman, Henry F., Hamlet; Univ. of Vermont, 1894	1897	1904
Ledbetter, James McQ., Rockingham; Vanderbilt Univ., 1894	1894	1903
Long, Z. F., Rockingham; Univ. of Pa., 1928	1928	1930
McIntosh, W. R., Rockingham; N. C. Med. Coll., 1913	1916	1917
Parsons, W. H., Ellerbe; N. C. Med. Coll., 1916	1916	1919
Sisk, C. N., Rockingham; Univ. of Nash., 1905	1922	1922
Teague, S. E., Hamlet; Tulane Univ. of La., 1921	1921	1923
Terry, Wm. Calvin, Hamlet; N. C. Med. Coll., 1911	1912	1914
Webb, W. P., Rockingham; Med. Coll. of S. C., 1897	1897	1904

ROBESON COUNTY SOCIETY

President: Thos. F. Costner, Lumberton; Jeff. Med. Coll., 1882	1889*	1918
Secretary: E. R. Hardin, Lumberton; Univ. of Ga., 1911	1915	1920
Baker, Horace M., Lumberton; Harvard Med. School, 1917	1919	1919
Beam, R. S., Lumberton; Jeff. Med. Coll., 1912	1912	1915
Bowman, E. L., McDonalds; Med. Coll. of Va., 1914	1914	1916
Britt, J. N., Lumberton; Atlanta Med. Coll., 1914	1923	1924
Brown, J. P., Fairmont; Univ. of Md., 1883	1889*	1893
Carmichael, Thaddeus W., Rowland; Ky. Univ. Med. Dept., 1904	1911	1919
Hodgin, H. H., Red Springs; Univ. of Md., 1905; N. C. Med. Coll., 1906	1906	1907
Holmes, A. B., Fairmont; Jeff. Med. Coll., 1910	1910	1914
Johnson, C. T., Red Springs; Jeff. Med. Coll., 1920	1920	1922
Johnson, Thomas C., Lumberton; Med. Coll. of Va., 1903	1903	1903
McClelland, Joseph O., Maxton; Med. Coll. of Va., 1908	1912	1913
McIntyre, Stephen, Lumberton; Jeff. Med. Coll., 1928	1928	1930
McMillan, Benj. F., Red Springs (Hon.); Univ. of Md., 1882	1884	1884
McMillan, R. D., Red Springs; Univ. of Md., 1910	1911	1912
Martin, J. A., Lumberton; Med. Coll. of Va., 1915	1915	1917
Nash, J. Fred, St. Pauls; N. C. Med. Coll., 1914	1914	1916
Pope, Henry T., Lumberton (Hon.); N. C. Med. Coll., 1894	1893	1902
Reed, D. H., Maxton; Geo. Wash. Univ., 1901	1904	1917
Stamps, Thos., Lumber Bridge (Hon.); Univ. of Louisville, 1888	1888	1890

ROCKINGHAM COUNTY SOCIETY

President:		
Secretary: S. P. Ray, Leaksville; Univ. of Pa.	1929	1931
Abernathy, Miles B., Reidsville; N. C., Med. Coll., 1906	1906	1910
Anderson, L. L., Madison; Med. Coll. of Va., 1927	1927	1929
Boaz, Thos. A., Stoneville; Coll. of P. and S., Balt., 1892	1892	1905
Carter, P. C., Madison; Univ. of Md., 1916	1916	1920
Casteen, Kenan, Leaksville; Univ. of Bellevue Hosp., Med. Coll., 1918	1919	1921
Cozart, B. F., Reidsville; Med. Coll. of Va., 1931	1931	1931
Cummings, M. P., Reidsville; Jeff. Med. Coll., 1911	1911	1914
Dillard, G. P., Draper; Bennett Med. Coll., 1916	1916	1919
Dixon, Hubert C., Madison; Univ. and Bellevue Hosp. Med. Coll., 1916	1916	1921
Hester, Wm., Reidsville; Jeff., 1926	1929	1930
Jett, Samuel G., Reidsville; Univ. of the South, 1903	1908	1911
Johnson, W. A., Reidsville; N. C. Med. Coll., 1907	1909	1910
McBryde, M. H., Reidsville; Univ. Coll. of Med., Richmond, 1901	1901	1904
McGehee, John Wm., Reidsville; Univ. of Md., 1904	1904	1905
Martin, Sydnor L., Leaksville; Balt. Med. Coll., 1892	1892	1904
Matthews, Wm. W., Spray; Chicago Coll. of Med. and Surg., 1913	1915	1918
Ray, John B., Leaksville; Balt. Med. Coll., 1898	1898	1898
Taylor, T. G., Leaksville; Ky. School of Med., 1877	1909	1910
Tuttle, A. F., Spray; N. C. Med. Coll., 1901	1901	1907

Tyner, Carl V., Leaksville; Univ. and Bellevue Hosp. Med. Coll., N. Y., 1916	1916	1919
Watson, Paul S., Madison; Med. Coll. of S. C., 1928	1928	1928
Wharton, Chas. R., Ruffin; Med. Coll. of Va., 1897	1897	1904
Wilson, N. G., Madison; N. C. Med. Coll., 1914	1914	1914

ROWAN COUNTY SOCIETY

President: T. W. Seay, East Spencer; Univ. of Md., 1921	1922	1924
Secretary: E. D. Andrews, Salisbury; Med. Coll. of S. C., 1917	1924	1930
Armstrong, C. W., Salisbury; Univ. of Md., 1914	1914	1915
Black, O. R., Landis; N. C. Med. Coll., 1914	1914	1918
Brawley, M. H., Salisbury; N. C. Med. Coll., 1910	1912	1914
Brown, Clarence E., Salisbury; N. C. Med. Coll., 1918	1920	1921
Brown, G. A., Mt. Ulla (Hon.); Univ. Coll. of Med., 1897	1897	1898
Busby, Julian G., Salisbury; Univ. of Md., 1904	1904	1905
Choate, J. W., Salisbury; N. C. Med. Coll., 1915	1915	1924
Clement, Edward B., Salisbury; Jeff. Med. Coll., 1906	1906	1913
Council, J. B., Salisbury (Hon.); P. and S., Balt., 1885	1885	1885
Eagle, J. C., Spencer; Jeff. Med. Coll., 1923	1923	1925
Ellis, Frank A., Salisbury; Univ. of Pa., 1918	1919	1919
Flemming, Giles M., Cleveland; Emory Univ., 1919	1919	1921
Ketchie, J. M., Salisbury; Jeff. Med., 1922	1922	1925
Lowery, J. R., Salisbury; Univ. of Md., 1904	1904	1913
McCutchan, Frank, Salisbury; Univ. of Va., 1920	1927	1928
McKenzie, B. W., Salisbury; Jeff. Med. Coll., 1916	1916	1920
Marsh, Frank B., Salisbury; Jeff. Med. Coll., 1919	1919	1922
Moncure, Wm., Jr.	.....	.....
Monk, Henry L., Salisbury; Med. Coll. of Va., 1897	1899	1903
Newman, Harold H., Salisbury; Johns Hopkins Univ., 1913	1914	1916
Peeler, John H., Salisbury; Univ. Coll. of Med., Va., 1899	1899	1904
Plyler, R. J., Salisbury; Univ. of Md., 1921	1924	1925
Ramsey, Jas. G., Cleveland, Ohio; Univ. of Pa., 1922	1924	1924
Robertson, L. H., Salisbury; Univ. of Pa., 1929	1929	1931
Shafer, Irving E., Salisbury; N. C. Med. Coll., 1914	1914	1914
Sigman, Frederick G., Spencer; Univ. Med. Coll. of Va., 1909	1909	1910
Slate, Wesley C., Spencer; Univ. of Tenn., 1903	1903	1913
Spencer, Frederick B., Salisbury; Univ. of N. C., 1909	1909	1911
Stokes, Jas. Ernest, Salisbury (Hon.); Univ. of Md., 1892	1900	1901
Summerell, E. M., China Grove (Hon.); Univ. of Pa., 1883	1883	1883
Tatum, Walter Lowe, Salisbury; Jeff. Med. Coll., 1922	1922	1924
Van Poole, C. M., Salisbury (Hon.); P. and S., Balt., 1880	1880	1880
West, Robert M., Salisbury; Med. Coll. of Va., 1900	1900	1904
White, E., Kannapolis	.....	1931
Whitehead, Edward, Salisbury	.....	1928
Woodson, Charles W., Salisbury; Columbia Univ., P. and S., 1904	1905	1907

RUTHERFORD COUNTY SOCIETY

President: Wm. C. Bostic, Jr., Forest City; Univ. of Pa., 1926	1926	1927
Secretary: Wm. C. Bostic, Forest City; Chattanooga Med. Coll., 1899; N. C. Med. Coll., 1905	1905	1905

Allhands, John M., Cliffside; Chicago Coll. of Med. and Surg., 1910	1910	1911
Biggs, Montgomery H., Rutherfordton; Univ. of Pa., 1897	1907	1908
Crawford, Robt. H., Rutherfordton; Johns Hopkins, 1914	1920	1921
Duncan, Amos C., Forest City; N. C. Med. Coll., 1919	1919	1920
Glenn, C. F., Rutherfordton; Univ. of Louisville	1927	1928
Gold, Charles F., Rutherfordton; Univ. of N. C., 1910	1910	1911
Harrill, L. B., Caroleen; Chattanooga Med. Coll., 1897	1902	1904
Head, W. T., Campobello, R. 4, S. C.; Atlanta Coll. P. and S., 1911	1911	1923
Hicks, Romeo, Henrietta (Hon.); Southern Med. Coll., Atlanta, 1888	1889*	1899
Hunt, J. F., Spindale; Univ. of Tenn., 1900	1900	1912
Logan, F. W. H., Rutherfordton; N. C. Med. Coll., 1916	1916	1919
Lovelace, Thos. C., Henrietta; N. C. Med. Coll., 1917	1920	1920
Moss, G. O., Cliffside, Emory Univ., 1927	1927	1929
Norris, Henry, Bryn Mawr, Pa.; Univ. of Pa., 1897	1907	1908
Reid, George P., Forest City (Hon.); Univ. Coll. of Med., Va., 1895	1894	1899
Rucker, Adin Adam, Rutherfordton; Univ. of Md., 1908	1908	1909
Twitty, John C., Rutherfordton; Balt. Med. Coll., 1892	1892	1904
Verner, Carl Hugh, Forest City; P. and S., Atlanta, 1912	1923	1927
Wiseman, P. H., Avondale; Med. Coll. of Va., 1925	1925	1926

SAMPSON COUNTY SOCIETY

President: O. E. Underwood, Roseboro; Univ. of Med., Va. 1909	1909	1910
Secretary: J. Street Brewer, Roseboro; Jeff. Med. Coll., 1919	1919	1921
Crumpler, Paul, Clinton; Univ. of Tenn., 1907	1907	1908
Kerr, John D., Clinton; Univ. of Md., 1908	1908	1910
Lee, J. Marshall, Newton Grove; Med. Coll. of Va., 1916	1920	1923
Matthews, James O., Clinton, R.F.D. (Hon.); Univ. Coll. of Med., Va., 1879	1879	1902
Parker, O. L., Clinton; Med. Coll. of Va., 1918	1918	1919
Royal, D. M., Salemburg; Med. Coll. of Va	1926	1928
Sessoms, E. T., Roseboro; N. C. Med. Coll., 1915	1915	1917
Sikes, Gibson L., Salemburg; Univ. Coll. of Med., Va., 1900	1900	1902
Sloan, Wm. H., Garland; Univ. of Md., 1916	1916	1920
Small, Victor R., Clinton; Ohio State Univ. Med. Coll., 1916	1920	1921
Wilson, Robert B., Clinton; Ky. School of Med., 1889	1889	1904

SCOTLAND COUNTY SOCIETY

President: Peter McLean, Laurinburg; Univ. of Md., 1906	1907	1908
Secretary: Evan A. Erwin, Laurinburg; Med. Coll. of S. C., 1912	1912	1913
Buchanan, L. T., Laurinburg; Jeff. Med. Coll., 1913	1913	1917
Gibson, John S., Gibson; Univ. of Md., 1905	1905	1907
James, F. P., Laurinburg; Univ. of Pa., 1916	1916	1917
John, Peter, Laurinburg; Univ. of Md., 1897	1897	1904
Livingston, Everett Alex, Gibson; Univ. of Md., 1912	1912	1913

Pate, James G., Gibson; Univ. of Pa., 1916	1916	1917
Shaw, W. G., Wagram; P. and S., Balt., 1892	1895	1904
Wilcox, J. W., Rutland, Mass.; Univ. of N. C., 1906	1906	1906
Wilkes, Marcus B., Laurel Hill; N. C., Med. Coll., 1912	1923	1923

STANLY COUNTY SOCIETY

President: D. Bain Moore, Badin; Univ. Coll. of Med., Va., 1913	1913	1915
Secretary: V. L. Bigler, Albemarle; Univ. Pittsburgh, 1925	1926	1927
Allen, Jos. A., New London; Univ. Coll. of Med., Va., 1901	1901	1904
Campbell, Jas. I., Norwood; N. C. Med. Coll.	1898	1898
Cox, Benj. F., New London; Coll. of P. and S., Balt., 1886	1886	1908
Dunlap, Lucius Victor, Albemarle; Univ. of N. C., 1909	1909	1910
Frazier, J. W., Badin; Jeff. Med. Coll., 1924	1924	1927
Gaskin, J. S., Albemarle; Med. Coll. of S. C.	.....	1931
Gaskin, Lewis R., Albemarle; Med. Coll. of S. C., 1921	1924	1926
Hartsell, F. E., Oakboro; Balt. Med. Coll., 1895	1895	1902
Hathcock, Thomas A., Norwood; Univ. of Md., 1893	1893	1904
Hill, Wm. Isaac, Albemarle; Univ. of Md., and P. and S., Balt., 1897	1897	1904
Laton, James F., Albemarle; N. C. Med. Coll., 1904	1904	1910
Lentz, C. M., Albemarle; N. C. Med. Coll., 1909	1909	1910
Shaver, W. T., Badin; Univ. of Md., 1918	1920	1921

STOKES COUNTY SOCIETY

President: J. L. Hanes, Pine Hall	.....	1931
Secretary: C. J. Helsabeck, Walnut Cove; Univ. of Md., 1919	1919	1922
Helsabeck, R. S., King; N. C. Med. Coll., 1913	1913	1920
Jones, A. G., Walnut Cove (Hon.); Univ. of N. Y., 1868	1894*	1892
Neal, J. M., Walnut Cove	.....	1931
Stone, Grady E., King; N. C. Med. Coll., 1915	1915	1920

SURRY COUNTY SOCIETY

President: R. C. Mitchell, Mt. Airy; Univ. of Pa., 1919	1921	1923
Secretary: R. E. Smith, Mt. Airy; Univ. of Pa., 1923	1923	1926
Ashby, E. C., Mt. Airy; Univ. of Pa., 1914	1914	1916
Boyles, A. C., Mt. Airy; Univ. of Md., 1887; Balt. Univ. of Med., 1898	1889*	1912
Flippin, J. M., Pilot Mountain; Coll. P. and S., Md., 1884	1893*	1926
Flippin, Samuel T., Siloam (Hon.); N. C. Med. Coll., 1898	1898	1898
Folger, P. B., Dobson; Jeff. Med. Coll., 1922	1922	1924
Lovill, Robert Jones, Mt. Airy; Univ. of Md., 1910	1910	1912
Martin, Moir S., Mt. Airy; Univ. Coll. of Med., Va., 1905	1909	1916
Parks, Hugh, Elkin; Jeff. Med. Coll., 1921	1921	1928
Pulliam, B. E., Elkin; Jeff. Med. Coll., 1928	1928	1931
Salmons, H. C., Elkin; N. C. Med. Coll., 1904	1904	1908

SWAIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....

TRANSYLVANIA COUNTY SOCIETY

President:		
Secretary:		
English, Edwin S., Brevard; Univ. of the South, 1901	1902	1904
Wilkerson, J. B., Rosman; Memphis Hosp. Med. Coll., 1906	1923	1925

UNION COUNTY SOCIETY

President: G. M. Smith, Monroe; N. C. Med. Coll., 1914	1914	1919
Secretary: William M. Love, Monroe; N. C. Med. Coll., 1915	1915	1919
Blair, M. P., Marshville; Med. Coll. of Va., 1895	1895	1895
Bolt, C. A., Marshville; Med. Coll. of S. C., 1926	1929	1929
Garren, R. H., Monroe; Univ. of Nashville, 1900	1901	1904
Goudelock, Jno. J., Monroe; Med. Coll. S. C., 1923	1924	1924
Ormand, J. W., Monroe; Univ. of Cincinnati Coll. of Med., 1926	1926	1927
Pearson, Raymond, Monroe; N. C. Med. Coll., 1922	1923	1924
Stewart, H. D., Monroe (Hon.); Univ. of Md., 1898	1898	1901
Thomas, J. E., Waxhaw; Univ. of Md., 1911	1925	

VANCE COUNTY SOCIETY

President:		
Secretary: J. H. Wheeler, Henderson; Jeff. Med. Coll., 1918	1918	1920
Bass, H. H., Jr., Henderson, Univ. of Pa.	1929	1930
Fenner, Edwin F., Henderson; Univ. of Md., 1905	1906	1908
Furman, Wm. H., Henderson; Jeff. Med. Coll., 1910	1910	1912
Harris, Fletcher R., Henderson (Hon.); Univ. of Va., 1881	1883	1883
Newell, H. A., Henderson; P. and S., Balt., 1906	1906	1906
Royster, Thomas S., Henderson; Univ. of Pa., 1916	1916	1924
Upchurch, Robert T., Henderson; Jeff. Med. Coll., 1908	1908	1910

WAKE COUNTY SOCIETY

President: C. E. Flowers, Zebulon; Med. Coll. of Va., 1913	1915	1916
Secretary: R. B. Wilkins, Raleigh; N. C. Med. Coll., 1913	1913	1915
Abernethy, Claude O., Raleigh; Univ. of N. C., 1906	1906	1907
Anderson, Albert, Raleigh (Hon.); Univ. of Va., 1888	1889	1890
Ashby, J. W., Raleigh; Univ. of Md., 1905	1921	1922
Barbee, G. S., Zebulon; Univ. of N. C., 1910	1910	1912
Bell, Carl W., Raleigh; Coll. of P. and S., Balt., 1914	1915	1916
Buffaloe, J. S., Garner; Balt. Med. Coll., 1900	1900	1904
Bugg, C. R., Raleigh; Johns Hopkins Med. Sch., 1922	1924	1925
Bulla, A. C., Raleigh; N. C. Med. Coll., 1915	1915	1918
Burt, B. W., Holly Springs; P. and S., Balt., 1886	1886	1904
Byrd, W. C., Morrisville; Jeff. Med. Coll., 1923	1923	1924
Campbell, Alton C., Raleigh; Univ. of N. C., 1910	1910	1912
Carpenter, Coy C., Wake Forest; Syracuse Univ., 1924	1924	1927
Carroll, E. D. Dixon, Raleigh (Hon.); Women's Med. Coll., N. Y., 1895	1900	1900
Caviness, V. S., Raleigh; Jeff. Med. Coll., 1921	1921	1925
Caviness, Zebulon M., Raleigh; Univ. of N. C., 1903	1903	1903
Cheek, C. E., Fuquay Springs; Univ. Coll. of Med., Va., 1912	1912	1914

Combs, Jos. J., Raleigh; Columbia Univ. of C. and P., 1926	1926	1929
Cooper, G. M., Raleigh; Univ. Coll. of Med., Richmond, 1905	1905	1906
Cozart, W. S., Fuquay Springs; Med. Coll. of Va., Rich., 1914	1914	1917
Dewar, Wm. B., Raleigh; Univ. of Pa., 1920	1920	1923
Edwards, C. J., Raleigh; Med. Coll. of Va., 1917	1921	1923
Eldridge, Chas. P., Raleigh; Univ. of Pa., 1926	1926	1927
Finch, O. E., Raleigh; Jeff. Med. Coll., 1915	1915	1917
Flowers, Clarence A., Wendell; P. and S., Balt., 1905	1907	1910
Fox, P. G., Raleigh; Med. Coll. of Va., 1922	1923	1929
Freeman, R. H., Raleigh; Jeff. Med. Coll., 1908	1908	1919
Gibson, M. R., Raleigh; Univ. of Md., 1905	1905	1914
Goodwin, A. W., Raleigh (Hon.); Bellevue Hosp. Med. Coll., 1887	1887	1887
Goodwin, O. S., Apex; Jeff. Med. Coll., 1923	1923	1926
Harris, J. H., Raleigh; Jeff. Med. Coll., 1914	1914	1930
Haywood, Hubert B., Jr., Raleigh; Univ. of Pa., 1909	1909	1910
Hester, Jos. R., Wendell; Univ. of N. C., 1910	1910	1912
Hicks, V. M., Raleigh; Jeff. Med. Coll., 1918	1918	1921
Hill, M. D., Smithfield	.....	.....
Horton, M. C., Raleigh; Univ. Coll. of Med., Va., 1903	1911	1911
Horton, W. C., Raleigh; P. and S., Balt., 1897	1896	1904
Hunter, J. P., Cary; Jeff. Med. Coll., 1919	1919	1921
Jenkins, Charles L., Raleigh (Hon.); N. Y. Univ. Med. Coll., 1890	1890	1894
Jones, Carey C., Apex; Jeff. Med. Coll., 1920	1920	1923
Jordan, Thos. M., Raleigh (Hon.); P. and S., Balt., 1881	1881	1882
Judd, Eugene C., Raleigh; Univ. of Pa., 1911	1911	1912
Judd, James M., Varina; Balt. Med. Coll., 1897	1897	1901
King, E. S., Wake Forest; Jeff. Med. Coll., 1927	1927	1930
Kitchin, Thurman D., Wake Forest; Jeff. Med. Coll., 1908	1908	1908
Knox, Augustus W., Raleigh (Hon.); Bellevue Hosp. Med. Coll., 1874	1878	1880
Lacy, Thomas A., State Hospital, Raleigh; Emory Univ., 1927	1927	1928
Lamm, Isaac W., Raleigh; Univ. Coll. of Med., Va., 1899	1899	1900
Lane, Bessie, Raleigh; Women's Med. Coll. of Pa., 1921	1921	1926
Lawrence, B. J., Raleigh; Jeff. Med. Coll., 1918	1918	1920
McDowell, F. C., Zebulon; Univ. of Pa., 1902	1913	1916
McGee, James Wm., Raleigh (Hon.); Bellevue Hosp. Med. Coll., 1888	1888	1888
McKee, John S., Raleigh; Univ. of Md., 1907	1908	1909
Mitchener, J. S., Raleigh; Johns Hopkins Univ., 1915	1915	1918
Neal, Kemp P., Raleigh; Harvard, 1917	1920	1921
Neal, Paul N., Raleigh; Harvard, 1919	1920	1921
Noble, R. P., Raleigh; Univ. of N. C., 1907	1907	1916
Oliver, A. S., Raleigh; Jeff. Med. Coll., 1914	1914	1919
Owen, J. F., Dix Hill, Raleigh; Jeff. Med. Coll.	1920	1927
Powers, John B., Wake Forest; Columbia, N. Y. City, 1907	1907	1911
Procter, I. M., Raleigh; Univ. of N. C., 1913; Univ. of Pa., 1915	1915	1917

Rand, E. G., Raleigh; Univ. of Pa., 1926	1926	1929
Ray, O. L., Raleigh, Rt. 1; Univ. Coll. of Med., Richmond, 1899	1899	1904
Rogers, Jas. Rufus, Raleigh; P. and S., Balt., 1886	1886	1904
Root, Aldert S., Raleigh; Univ. of Pa., 1911	1911	1913
Royster, Hubert A., Raleigh (Hon.); Univ. of Pa., 1894	1894	1895
Shore, Clarence A., Raleigh; Johns Hopkins, 1908	1909	1909
Smith, Sidney, Prof. Bldg., Raleigh; Tulane Univ., 1925	1925	1930
Smith, W. G., Wendell; Med. Coll. of Va.	1926	1928
Soady, J. H., Garner; McGill Univ., 1903; Toronto Univ., 1905	1924	1926
Strickland, W. M., Wendell; Med. Coll. of Va., 1919	1921	1923
Taylor, H. A., Raleigh; Univ. of Ala., 1912	1923	1924
Templeton, James McP., Cary; Balt. Med. Coll., 1882	1882	1893
Thompson, Hugh A., Raleigh; Univ. of Pa., 1914	1914	1917
Vann, H. M., Wake Forest; Jeff. Med. Coll., 1917	1926	1923
Ward, W. T., Raleigh; Univ. of Md., 1925	1925	1927
Watson, John B., Raleigh; Univ. of N. C., 1908	1908	1909
Weathers, R. R., Knightdale; Richmond Med. Coll.	1926	1928
West, Louis N., Raleigh; Jeff. Med. Coll., 1912	1912	1915
Wilkerson, Charles B., Raleigh; Univ. of N. C., 1906	1906	1908
Wilkinson, C. T., Wake Forest; Tulane Univ., 1922	1922	1923
Wilkinson, R. W., Jr., Wake Forest; Tulane Univ., 1922	1923	1924
Winston, P. H., State Hospital, Raleigh; Med. School of Va., 1929	1929	1930
Wright, J. B., Raleigh (Hon.); Univ. Coll. of Med., Va., 1899	1899	1900
Yarborough, Frank R., Cary; University of Penn., 1923	1925	1926

WARREN COUNTY SOCIETY

President: Frank P. Hunter, Warrenton; Univ. of Va., 1925	1925	1927
Secretary: G. H. Macon, Warrenton; Univ. Coll. of Med., Va., 1910	1910	1911
Foster, H. H., Norlina; Jeff. Med. Coll., 1919	1919	1923
Holt, T. J., Warrenton; Med. Coll. of Va., 1904	1904	1911
Peete, C. H., Warrenton; Univ. of Pa., 1903	1906	1911
Rodgers, W. D., Jr., Warrenton; Jeff. Med. Coll., 1913	1913	1915

WASHINGTON-TYRRELL COUNTIES SOCIETY

Bray, T. L., Plymouth; Univ. of Md., 1916	1916	1919
Harrell, W. H., Creswell; Jeff. of Pa., 1925	1925	1926
McGowan, Claudius, Plymouth; Med. Coll. of Va., 1917	1917	1922

WAYNE COUNTY SOCIETY

President: Thomas M. Bizzell, Goldsboro; Univ. of Md., 1908	1908	1916
Secretary: D. E. Best, Goldsboro; Univ. of Md., 1924	1924	1926
Bizzell, M. E., Goldsboro; Tulane Univ., 1923	1923	1925
Cobb, Donnell B., Goldsboro; Univ. of Pa., 1921	1921	1926
Cobb, W. H., Jr., Goldsboro; Jeff. Med. Coll., 1889	1889	1890
Crawford, W. J., Goldsboro; Med. Coll. of Va., 1922	1922	1923

Dale, G. C., Goldsboro; Univ. of Pa., 1925	1925	1927
Henderson, C. C., Mt. Olive; Univ. of Md., 1914	1914	1919
Hollingsworth, E. T., Goldsboro; N. C. Med. Coll., 1912	1912	1915
Irwin, Henderson, Goldsboro; Univ. of Md., 1912	1914	1916
Ivey, H. B., Goldsboro; Univ. Coll. of Med., Richmond, 1911	1911	1917
Linville, W. C., Goldsboro; Univ. of Md., 1903	1903	1923
Lister, J. L., Mt. Olive; Med. Coll. of Va., 1896	1896	1909
Miller, Robert B., Goldsboro; Med. Coll. of Va., 1898	1900	1902
Moore, J. E., Mount Olive; Tenn. Med. Coll., 1900	1898	1918
Morris, George B., Goldsboro; Univ. of Md., 1910	1910	1912
Person, Edgar Cooper, Pikeville; Med. Coll. of Va., 1905	1905	1908
Rand, C. H., Fremont; Univ. of Pa.	1926	1928
Register, F. M., Goldsboro; Ky. School of Med., 1893	1891	1904
Smith, R. A., Goldsboro (Hon.); Bellevue Hospital, 1882	1882	1887
Smith, Wm. H., Goldsboro; Univ. of Pa., 1906	1907	1912
Spicer, William, Goldsboro; Bellevue Hosp. Med. Coll., 1898	1897	1904
Steel, Wm. C., Mt. Olive; Univ. of Md., 1891	1891	1894
Strosnider, Charles F., Goldsboro; Univ. of Md., 1909	1910	1913
Sutton, William G., Seven Springs; Jeff. Med. Coll., 1889	1889	1896
Warrick, L. A., Goldsboro; Geo. Washington Univ., 1923	1923	1924
Whelpley, Frank L., Goldsboro; Missouri Univ., 1902	1918	1918
Wilkins, J. W., Mount Olive; Med. Coll. of Va., 1913	1913	1917
Woodard, A. G., Goldsboro; Univ. of N. C., 1907	1907	1909

WILKES COUNTY SOCIETY

President: Fred C. Hubbard, North Wilkesboro; Jeff. Med. Coll., 1918	1919	1921
Secretary: James H. McNeill, North Wilkesboro; Geo. Wash. Univ. Med. School, 1926	1926	1927
Eller, Albert J., Readybranch; P. and S., Balt., 1893	1895	1898
Gilreath, Frank H., N. Wilkesboro (Hon.); Univ. of Nashville, 1898	1898	1898
Hutchins, E. M., North Wilkesboro; N. C. Med. Coll., 1896	1896	1904
Pegram, R. W. S., Canton; Balt. Med. Coll., 1892	1894	1907
Sink, C. S., North Wilkesboro; N. C. Med. Coll., 1912	1912	1913
Smith, Harold Benj., North Wilkesboro; Med. Coll. of S. C.	1929	1930
Somers, L. P., New Castle; Univ. of Md., 1897	1889*	1904
Triplett, W. R., Purlear; N. C. Med. Coll., 1914	1915	1920
White, John W., Wilkesboro (Hon.); Jeff. Med. Coll., 1889	1889	1890

WILSON COUNTY SOCIETY

President: M. Reaumer Freeman, Bailey; Univ. Coll. Med., Med. Coll. of Va.	1913	1915
Secretary: W. C. Hunter, Wilson; Univ. of Pa., 1928	.....	1931
Anderson, Wade H., Wilson; Univ. of Va., 1902	1904	1904
Bell, G. E., Wilson; Jeff. Med. Coll., 1921	1921	1922
Best, Henry B., Wilson; Univ. of N. C., 1907	1907	1908

Blackshear, T. J., Wilson; Emory Univ., 1914	1923	1924
Bradshaw, T. G., Wilson; Med. Coll. of Va., 1909	1924	1924
Darden, D. B., Stantonsburg; Univ. of Pa., 1921	1924	1926
Dickinson, Elijah T., Wilson (Hon.); Med. Coll. of Va., 1895	1895	1900
Eagles, Charles S., Saratoga; Univ. of N. C., 1909	1909	1910
Grady, Leland V., Wilson, Rt. 2; N. C. Med. Coll., 1913	1913	1914
Hackney, Ben. H., Lucama; Tulane Univ., 1911	1911	1913
Lane, P. P., Wilson; Univ. of Md., 1908	1908	1920
Lewis, Geo. W., Wilson (Hon.); Univ. of Md., 1886	1885	1894
McClees, E. C., Elm City Med. Coll. of Va., 1917	1920	1920
Mitchell, G. W., Wilson; Univ. Coll. of Med., Va., 1913	1913	1920
Moore, Chas. E., Wilson (Hon.); Bellevue Hosp. Med. Coll., 1875	1875	1875
Moore, Edwin G., Elm City (Hon.); Univ. of Md., 1883	1883	1890
Person, T. E., Stantonsburg; N. C. Med. Coll., 1911	1911	1914
Pittman, M. A., Wilson; Jeff. Med. Coll., 1921	1924	1923
Putney, R. H., Elm City; Med. Coll. of Va., 1914	1914	1920
Saliba, Michael M., Wilson; Balt. Med. Coll., 1897	1910	1910
Smith, A. Jones, Black Creek; Univ. of Pa., 1921	1921	1923
Smith, L. J., Wilson; Jeff. Med. Coll., 1912	1917	1918
Strickland, Ernest L., Wilson; Med. Coll. of Va., 1916	1916	1917
Swindell, C. L., Wilson; Univ. of Md., 1909	1909	1920
Woodard, C. A., Wilson; Univ. of Va., 1904	1904	1920
Woodard, G. B., Wilson; Med. Coll. of Va., 1915	1915	1916

YADKIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....

YANCEY COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Peek, W. A., Ramseytown; non-graduate	1905*	1919

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